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THE

PHOTOGRAPHIC NEWS:

A WEEKLY RECORD

OF THE

PROGRESS OF PHOTOGRAPHY.

VOLUME XXXVII.

EDITED BY T. C. HEPWORTH, F.C.S.

Nulla recordanti lux est ingrata.—MARTIAL.

LONDON:
PRINTED AND PUBLISHED BY ALEXANDER & SHEPHEARD, 21 AND 22, FURNIVAL STREET, E.C.

1893.

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VOL. XXXVII.—NO. 1792. JANUARY 6, 1893.

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NOTES.

WE commence this day a new volume of the PHOTOGRAPHIC NEWS, and take the opportunity of wishing all our good friends and subscribers a Happy New Year.

THE portrait study by Mr. J. S. Bergheim, which we issue as a supplement with the present number, is reproduced from one of the pictures hung at the last Pall Mall Exhibition. This, with companion works by the same earnest worker, was abelled "Taken with an uncorrected single lens and perfectly untouched." We are glad to present it to our readers as a frontispiece to the volume now ommencing.

IT is satisfactory to note that the new American 'opyright Act, under which Englishmen are enabled o obtain copyrights in the United States, is not a dead etter. Messrs. Eyre & Spottiswoode, as proprietors of he Woodbury Company, have just succeeded under his Act in stopping the sale of a piracy of one of heir works, and we congratulate them upon this result. They deserve the sincere thanks of the public for thus etting in motion for the first time a law which is of uch importance to their fellow-workers. We publish articulars of this case on another page.

THE Exhibition of Works by the Old Masters and by eceased Masters of the British School, which opened nder the auspices of the Royal Academy on Monday st, should be visited by all who study portraiture, for he galleries are full of fine examples by Rembrandt, ubens, Vandyck, and by Reynolds, Gainsborough, nd Romney. Such a collection of splendid paintings s not often to be seen, and the opportunity should not e lost. The exhibition will remain open until the econd Saturday in March.

WE are glad to note that the Photographic Society of Philadelphia have followed the lead of the Society of Arts (London) in awarding to Mr. Frederick E. Ives its gold medal in special recognition of his work in composite heliochromy. Upon another page we print the report of the committee appointed by the Societ to consider the subject.

WE have more than once had occasion to notice that the optical lantern is fast extending its sphere of usefulness. Its employment in religious services has become quite common, and now theatrical managers are recognising it as an effective means of illustration. In more than one pantomime this season the lantern is being used for the purpose of helping out the story. In one case, the history of Robinson Crusoe and his man Friday is partly worked out in this way.

Wilson's Photographic Magazine, published in New York, which has hitherto appeared every fortnight, is, from the beginning of the year, to come out monthly. The Magazine will at the same time be enlarged, while its price is reduced.

THE following note of warning appears in the columns of our American contemporary, *Anthony's Bulletin* :—

"A case which has recently come under our notice will, we think, prove a timely warning to some of our readers. Certain lenses of inferior make are being transformed into so-called 'Dallmeyer's,' by changing the engraving on the tube so as to read 'J. H. Dallmeyer, N.Y.' As this is rather clumsily done, no dealer would be deceived by it, and we would advise all purchasers of second-hand lenses to examine them carefully, to avoid having this imposition practised upon them."

MR. OWDEMANS, who has just written a book about the sea-serpent, and who not only firmly believes in the existence of the creature, but has ventured to describe its probable appearance, recommends all travellers fortunate enough to get a glimpse of the sea-monster to take an instantaneous photograph of it, as zoologists who are always "attempting to discredit the sea-serpent" will not believe mere reports and pencil drawings. This recommendation, we venture to think, is wholly superfluous. Should a sea-serpent ever be sighted, we may be sure that a perfect battery of cameras will be pointed towards the stranger. It would be difficult to find, nowadays, a passenger ship which has not more than one camera on board.

PHOTOGRAPHS of the effects of the earthquake, which happened some time ago at Charleston, reveal the fact, the *Architect* points out, that in most cases where great damage was done, the cause was due to the use of bad mortar. The older the building the less was it disturbed, showing that the builders of a bygone generation employed better materials. This is one of the many cases in which a photographic record is invaluable, simply because its evidence is not affected by time, and is always available for comparison.

PARTS 1 and 2 of the Dallastype reproduction of the first folio edition of Shakespeare (1623) have just been published, and Mr. Dallas is to be congratulated on the successful completion, so far, of his arduous task. The Dallastype reproduction differs essentially from the reproductions of Mr. Staunton in 1866, and that of Chatto & Windus of 1876, which were in photo-lithography, and produced by Mr. Griggs of Peckham. The process of Mr. Dallas is in no sense photo-lithography, but a method which presents the text as a raised surface, which can be printed from as from ordinary type. The *Athenæum* points out that while the Dallastype probably has advantages at the press, corrections and additions can be easier made on the stone in the older process. In the Dallastype erasures only are possible, and corrections would necessitate an entirely new plate. This may be so; but probably Mr. Dallas would have something to say on this point.

PICTORIAL papers which, for years past, when opportunities presented themselves, have been in the habit of using up old blocks to illustrate passing events, are gradually finding that photography has taught people to expect more accuracy than heretofore. They won't be put off with anything. A little while ago, a paper, which goes in for pictures up to date, produced an illustration *àpropos* of Sir Charles Euan Smith's mission to Morocco, and entitled it "The Sultan of Morocco riding through Fez." A second illustration was called "A Camp and a Caravan." Unluckily, somebody pointed out that the first-named picture originally appeared in the *Illustrated London News*, and was then called "State Visit of the Sultan of Morocco to the Mosque at Tangiers," while the second was taken from a photograph, not of a camp, but of the Soko, a market-place immediately outside the walls of Tangiers. Really, up-to-date journalism seems to be as inaccurate in its topographical pictures as it is in its portraits. An an instance of agreeing to differ excepting on the points of bearing no resemblance to the original, we need only point to the portraits of the late Mr. Montagu Williams which have been published during the past few days.

JUPITER'S fifth satellite, the discovery of which is due to Professor Barnard, of the Lick Observatory, has now been detected by English observers. Mr. A. A. Common speaks of it as an extremely difficult telescopic object, and says that the "brightness seems less than that assigned to it by Professor Barnard; but this may be due to the very much better sky they enjoy at Mount Hamilton; the glare from Jupiter would be with them very much less, so that they would have the planet on a much darker background, and it would appear brighter than it does here. I have not heard of any other observations having been made out of America."

THE sixth annual exhibition under agreement between the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club, which is open to all the photographers of the world, will be held at the Galleries of the Pennsylvania Academy of Fine Arts, Philadelphia, from April 17th to 20th, 1893. The committee have forwarded us copies of the rules and entry forms, and we shall be pleased to send these to any of our readers who wish to exhibit, if they will forward to us a stamped and directed envelope.

WE may mention that the "Conditions" drawn up in connection with this exhibition are very fair, and at the same time are of a common-sense character. We especially commend the following:—"The Silver Medal of the Photographic Society of Philadelphia will be awarded by a Board of Judges, for artistic, technical, or scientific excellence. The judges will give preference, other things being equal, to pictures in which both the negative and print are the personal work of the exhibitor. In making their selections, the judges will endeavour to give due recognition to work in any of the various branches or processes of photography which may show unusual merit, obtaining, if necessary, the aid of special experts in any particular line. The Board of Judges will be selected to consist of three artists of acknowledged ability, at least one of whom shall be well versed in practical photography, and two expert practical photographers."

MULTIPLE-COATED PLATES.

BY A. PRINGLE.

SOME time ago I gladly agreed to open a discussion on "Multiple-coated Plates," but in the programme my name is put down as though I were to read a paper. As I have only had experience of these plates experimentally, I should not like to speak *ex cathedrâ* about them. Whatever the plates may be in practical photography they have opened up a wide field of experimentation, and there are men who are better able to speak on experimental photography than I am. In discussing this kind of plate we are bound by the facts of the case to speak of one distinct commercial product, and I always feel a certain amount of delicacy in doing that, because I might be prejudiced one way or the other. By fortuitous circumstances I might get a run of successes and take too rosy a view of the plates, or, on the other hand, I might get a run of failures, from equally fortuitous circumstances, and be led to condemn them unnecessarily and unjustly. I am going to speak about experiments I have performed, not very numerous, but sufficiently deliberately performed to enable me to say something as to what I have found in the use of them, and I have had the advantage that the firm which supplies the plates has been very willing to supply me with any little modification of the plate that I might ask for, and for this the firm has my gratitude. The only way in which I can divide my discourse will be to consider what are the two special claims made for these plates coated with several emulsions. I am told the claims are mainly, first, that they do away with halation to a great extent; and, secondly, that they counteract over-exposure. I think, however, I will first say a few words on the general aspect of the question. There is, I believe, no secret about their manufacture. Ordinary glass is coated with a somewhat slow emulsion, and after that is dry another coating of emulsion, a more sensitive one, is put on the top of the first. It is a long time since attempts were made in a somewhat similar direction for the purpose of getting over that bugbear, halation. It would hardly be worth while for me to enter into the question of halation now, but those who are not well versed in photography are not fully aware of the mischief that it does. We all know its effect in the case of a window in an interior, but we do not see fully its mischievous effects in an ordinary landscape—I speak of the case where we have foliage against a more or less well-illuminated sky, in which the foliage appears blurred, loses its tone value, and becomes inartistic and unscientific. I believe I am right in saying that the first person to lay down any law as to the causes of this halation was Captain Abney, and his view has been more or less universally accepted—that halation of both kinds is due to reflection from the back surface of the glass. The earliest method of getting over halation was a fairly successful one; it consisted of backing the plates with some substance, in optical contact with the glass, of as nearly as possible the same refraction index as the glass itself, the result being that the peccant rays were to a certain extent absorbed by the medium. This did not wholly or always overcome the halation. Later on, by the use of thinner films, the amount of halation was reduced. What happened next in the history of halation I am not quite sure, but my memory was refreshed by a letter from Professor W. K. Burton, which appears in *Photography*, wherein he says that some ten years ago he mentioned at the London and Provincial Society that he had been experimenting on the lines of putting between the emulsion and the plate a film of non-actinic character. I think it was gelatine containing silver chromate. He found this worked sufficiently well to prevent halation, but it was an awkward process to work practically, and I believe nothing more was done in the matter. How it occurred to the guiding spirit of Messrs. Thomas & Co to coat the plate with two emulsions I do not know, but anyhow, we have double-coated plates by this firm to deal with to-night. I think I might now divide my discourse into the sub-divisions. First, the question of the double-coated plate and halation. I need hardly say that the putting of a thick film on a plate, more particularly if the film be of a more or less non-actinic colour, will to a certain extent reduce the amount of halation. It might be urged that in that case the makers of these plates had nothing to do but to put a double thickness of one emulsion: but I do not think that would be equally efficient. What happens with the plate coated with two films of two degrees of rapidity is, so far as I am able to see, that if an exposure be made on a subject which in the ordinary way would give great halation—say an interior with a window—if the exposure be only long enough to affect the upper film, the result is in no way different from that on an ordinary plate practically speaking: theoretically there might be a slight difference. But if we give a very long exposure to these plates the result would be as I will describe. I tried the plates on a dark room with a large glass door, looking into a conservatory, beyond which was a lawn—an extremely difficult subject to deal with in an ordinary way. In the case of a very long exposure on this subject the top film received such an exposure that it was reversed, becoming a positive, with nearly clear glass, and light has passed through the top film in sufficient force to produce an image on the lower film with a more or less powerful development. After developing one of these plates I found it possible to remove the top film, and so I was able to see what I have described as occurring. I found that *in the top film* some of the dark parts of the room were fairly well exposed, while the window was reversed and was practically clear glass, while *on the under film* the dark parts were ghosts, and there was a fairly good negative of the window. If I had not stripped the film the plate would have made a fairly good printing negative, giving a print the mean of the two films. The *rationale* is this. If the exposure is sufficient not only to over-expose the upper film, but also to pass through it and sufficiently impress the lower film, the upper would be reversed, while the lower would have received enough light to produce a good negative on proper development. With certain reservations I find that to be true. I will now describe an experiment made in conjunction with Mr.

Sandell. I shall only refer to the double-coated plates and not to the triple-coated ones, as the principle is identically the same in both cases, and I shall discuss, as far as possible, principles and not plates. The first thing I desired to find out was whether there was any foundation for the statement that half a second exposure with f/64 under trees was sufficient for one of these plates. It was not sufficient *not* under trees; what it would have been under trees I do not know. I found that in a view *with trees in it* the normal exposure to get a good negative on the top film was ten seconds at f/32. We then began to see what we could do with a long exposure without losing the plates altogether. I shall stick to what I found myself. I exposed one plate two minutes and another four, so that I had a very gross over-exposure indeed. I developed the plates with Thomas's developer, "Cyclol" (I believe it is a simple mixture of hydroquinone and eikonogen), for a very long time. With a normal exposure a good negative was developed on the top film in the ordinary time. In the case of the plate I exposed for four minutes it came up very rapidly, and in two minutes the view began to show on the back of the plate; after that I left it in the developer for about twenty minutes or so. When it was fixed you could see absolutely nothing through it. I then reduced the plate with ferricyanide, and the result was perfectly successful. The plate became as good as the normally exposed one. When I first used the plates, I did not find that my results tallied with the claims made for them both publicly and privately, but I found out the reason to a certain extent, and a great deal of the importance of this subject depends on that reason. If you take one of these plates and over-expose it in the ordinary way, say, two or three times too much, you will not get any better result than with an ordinary plate; but if you over-expose it ten times too much—I don't venture to lay down the exact line to be drawn—or twenty or thirty times too much, you will produce a plate which will be developable into a fairly good negative, according to my experiment. The fact of the matter is that if you expose long enough for the light to penetrate the upper film and act with sufficient energy on the lower one you will be able, by long enough development, to produce a good enough image, which may or may not require to be reduced. This point is responsible for many of the failures with these plates. With a little over-exposure, such as a person might give by mistake, these plates would present no advantage whatever, but if, either unintentionally or by error, gross over-exposure was given, a good result might be obtained. It is the same with regard to halation. The normal exposure for my drawing room, which I have described, I found to be two minutes with f/16; with a five minutes' exposure I did not get such a good result as with an ordinary plate, but with a fifteen minutes' exposure, and appropriate development, I got a better result than I should expect on an ordinary plate. Unless the exposure is long enough to allow the light to impress the lower film, these plates have very little advantage over ordinary plates. From an experimental point of view I directed my attention to the facility with which the top film could be stripped off, and I did so for the purpose of seeing what amount of light would pass through the top film. I was quite surprised to see how little light did pass through—that is to say, unless the exposure was very long practically no light passed through the upper film. This led me to think certain things as to the theory of halation, and I wish to say, with a view of "drawing" Captain Abney, that I was surprised at the small quantity of light which passed through and could be reflected from the back of the plate. Captain Abney has given me a very good explanation of the matter. I think there are some gentlemen here who will be able to state their experiences with these plates. I have given my view without prejudice of any kind. I do not find that with a normal exposure there is any practical gain with these plates as to halation as compared with ordinary plates, nor in the case of slight over-exposure. If, however, you give an over-exposure of ten times or upwards you get results which you could not produce with a like exposure on ordinary plates. If you want to make absolutely sure of getting a good technical negative of a landscape or interior you can do so by giving a sufficiently long exposure on one of these plates, and developing them *secundem artem*—that is to say, you want to know exactly how to develop them. If you have given twenty times the proper exposure, development will have to be very prolonged, more so than if you had only given ten times. Perhaps the most ticklish thing about these plates is that after a short time they become practically a closed book, a dead black all over, and therefore you have to a certain extent to trust to Providence in development. You can always, however, make sure by developing long enough, and trusting to a reducer afterwards. By that means I have been able to produce negatives of subjects I have always found very difficult.

DISCUSSION.

Mr. SUTTON: I should like to say that it appears to me you must use either one film or the other, that you cannot use both. There is a break in the photographic scale due to the two emulsions, the result being a complete blocking of some of the tones. In order to determine that point, I made some experiments, and took a slow plate, and on top of it, emulsion to emulsion, I put a more sensitive film; the plate was 12 Warnerke and the film 25 Warnerke. I knew exactly the amount of light necessary to cause reversal on the film, and I gave such exposure as would reverse the high lights on the film, interposing a negative between the light and the film. I have brought the plate and the film. On the film you have a reversed negative, and on the plate an ordinary positive. If you put them one on top of the other, you will find there is a complete blocking out of light. I may say that five years ago I used plates coated twice with the same emulsion.

Mr. PRINGLE: Mr. Sandell's view is that where the top film is reversed it becomes practically clear glass, and in that spot the under film becomes a negative. Where the upper film had only received about the ordinary exposure, the details appeared in it in a negative form, while in the lower film there was only the ghost of an image Mr. Burton, in *Photography*, states pretty confidently that the double coating will increase the scale of gradation.

Mr. Harrison: Mr. Pringle's remarks bring out one advantage with regard to these plates, that by means of them you can have either a slow or rapid plate without carrying two separate plates.

Mr. Lyonel Clark: I have not tried the plates; but Mr. Pringle touched on colour staining, and undoubtedly that has a great effect in preventing halation. I remember very well the use of chromate, and I made some experiments. The weak point, so far as I can see, in these plates appears to be the jump which must take place between the two emulsions. I can imagine an exposure of ten seconds being enough to penetrate the top but not the bottom film. The exposure must be much longer for the lower film, and it would begin to act all of a sudden, so that there is a great hiatus if the speed of the two emulsions is very far apart. Mr. Sutton's experiment is not very conclusive as showing the effect of these plates. Halation may be said to be caused by great over-exposure in one spot, say a window; but he over-exposed the whole film for the whole time. Mr. Pringle's experiments tend to bear out the claim that these plates cure halation, but they do so by jumps. Perhaps a series of graduated emulsions would overcome that.

Mr. Pringle: Mr. Burton, in his letter, mentions that he made the experiment about ten years ago:—

[" As Mr. Henderson does more than claim priority . . . . I must remind him that at a meeting of the Photographic Club ten years ago or more . . . . I showed plates coated with chromate of silver," &c.—*Photography*, " Correspondence" column, November 3, 1892.]

Mr. Clark has hit upon an experimentally important point, which I noticed some time ago. I found that very fault of the jump between the two emulsions, which I thought a very serious defect, and I got Messrs. Thomas to coat some plates twice with the same emulsion, and I so got a more workable plate—a plate with which I did not require to give such enormous over-exposure before I got good effects.

Mr. Grant: I have tried these plates, and took some abroad with me. I took it that they should all be over-exposed, and I gave about ten times the normal exposure. Here is a negative with a lake and trees in the foreground, and mountains in the distance. You will see that there are clouds showing, though there is great detail in the trees, and that I do not think would be possible with an ordinary plate. As to the latitude of exposure, I have two negatives exposed at precisely the same time and under precisely the same conditions—one on a " Sandell" plate and the other on a " Cyclist" plate. I exposed the " Sandell" plate half a minute and the " Cyclist" half a second. The " Sandell" plate was reduced, and I do not think there is much to choose between the two negatives. My experience also confirms the difficulty of getting a negative if you only over-expose one or two times. Here is the first plate I exposed. I found it became perfectly dense, and I developed it for about three quarters of an hour. I did not know that the plates should be reduced, so I stripped off the top film.

(*To be continued.*)

ON DIAPOSITIVES.

BY P. C. DUCHOCHOIS.

WHEN diapositives are wanted the same size as the negatives, they are generally made by contact on collodio-silver bromo-iodide dry plates, or by printing out on collodio-silver chloride plates. The latter method is the best. Here is a formula for the emulsion:—

A.

Magnesium chloride	1 gram.
Pyroxyline (powdery)	3 grams.
Alcohol	100 c.c.
Ether	100 ,,

B.

Silver nitrate (powder)	4 grams.
Water, hot	4 c.c.

Dissolve and add—

Alcohol	100 c.c.

Then mix gradually—

Ether	100 c.c.

Let stand a few hours. Filter and dissolve—

Pyroxyline (powdery)	3 grams.

Add B to A in small quantities, shaking well after each addition; then add 5 decigrams of citric acid, dissolve in a little hot water, and afterwards three drops of ammonia. Let stand for twenty-four hours, filter, and the emulsion is ready for use.

The proofs should be much over-printed and fixed in a weak solution of sodium thiosulphate without toning when the diapositives are wanted in photogravure and other industrial photo processes.

This process yields excellent results, no doubt, but a more simple, and, I think, more reliable process, that employed by European photo-engravers, is to make the diapositives by the carbon process. The *modus operandi* is well known, described in every treatise on photography: developing with water, for that purpose heated to a temperature as low as possible, a carbon print on a glass plate prepared with a bichromated gelatine substratum insolated from the back of the plate and washed.

A modification of this manner of operating devised by the writer presents some advantages, among which is that of obtaining diapositives without distortion and of exactly the same size as the negative, this being an impossibility by the ordinary process, since by fixing on the plate for development, the tissue extends both ways.

The process now recommended consists in sensitising the tissue as usual, then attaching it in perfect contact by means of the indiarubber squeegee on a sheet of celluloid, upon which it is allowed to dry. The tissue is then printed through the celluloid support and the image developed in the ordinary manner, The celluloid sheet being very thin ($\frac{10}{1000}$ths of an inch), one thus obtains a diapositive quite as sharp as the negative, provided care has been taken that the light falls perpendicularly on the printing frame during the whole exposure time.

Duplicate negatives, reversed or not, can be printed from these diapositives. The *modus operandi* suggests itself.

The reversed positive image on the celluloid sheet seen face upwards is not at all objectionable to make sharp reversed impressions on stone, on metal plates, &c. However, if one objects to it, we nevertheless advise him to use celluloid sheets instead of glass plates to transfer and develop the image in the ordinary manner, especially when the method of the three impressions or that of the three cliches is employed in photogravure, the celluloid permitting one to trim and cut the diapositives square to the required size.

It is evident that celluloid sheets can also be employed for the purpose in question, as supports for gelatine and collodion emulsions, but we found that the carbon process is more expeditious and simple; moreover, the image can be reduced in intensity by warm salted water, and intensified in many ways, with potassium permanganate, for example, which is the method most generally employed.

ON THE METHOD OF EXAMINATION OF PHOTOGRAPHIC LENSES AT THE KEW OBSERVATORY.

BY LEONARD DARWIN, MAJOR, LATE ROYAL ENGINEERS.[*]

(*Continued from page* 839.)

THE reason for multiplying the result of the observations by f/f' is that it would evidently be unfair to test objectives of different focal lengths on a near fixed object, for in some cases the ground glass would be close to the principal focus, and in others far removed from it. It seems, therefore, advisable to reduce all results so as to make them equivalent to observations taken on infinitely distant objects, and this is done by applying this correction. An assumption is here made that the difference of focus between different coloured rays in the same lens varies directly as the focal distance, and this in all probability, though not strictly accurate, introduces an exceedingly small error in the results.

The blue and red glasses, which were selected and measured for colour by Captain Abney, form a perfect contrast, as may readily be seen by placing them together and observing how very nearly completely all light is excluded.

By simply noting the difference of focus recorded in the certificate between observations made in red and white light, or between observations made in blue and white light (the latter being of far more practical importance), it can at once be told if the lens is or is not well corrected for achromatism. But it would seem desirable, as already remarked, to form an estimate of the actual amount of diffusion produced in the image as a result of any error that may be detected in the chromatic adjustment of the lens. Now there can be no difficulty in determining the size of the disc of radius $b'w$, for b'' has been directly determined by experiment, and, since the cone $b'bb'$ represents the cone of rays of maximum actinic effect, on this disc will be concentrated the bulk of the rays which produce the effect on the photographic plate. But what we want in reality to find is the radius $u'w$, since that has been shown to represent more accurately the radius of the disc of diffusion: it may, however, be remarked that no fault can be found on this head with the method of testing, because the probabilities of error are lessened by taking the observation with rays of the maximum actinic effect. With a lens not at all corrected for achromatism the length between the different foci for different coloured rays varies approximately as the difference of the squares of the wave-lengths of the colours in question; and, taking the wave-lengths as above given, uw will be found to be to bw as 5 to 4. But it must be confessed that this rule may have little or no relation to the truth with a corrected lens, and it is merely adopted as the only approximation obtainable. It is assumed, therefore, that $uw = 5/4\ bw$. Let bw, the result obtained by the examination for achromatism, $= \alpha$; let the diameter of the disc of confusion, or twice $u'w$, $= \delta'$; let the principal focal length of the lens $= f$; and let the effective aperture $= \epsilon$. Then it can be seen, by references to Fig. 6, that—

$$\alpha = \frac{4}{5}\frac{f\delta'}{\epsilon} = 8\delta' \sqrt{(\text{C.I. No. of stop})}.$$

The table on page 771, which gives the values of $20\delta\sqrt{(\text{C.I. No. of stop})}$, affords a ready means of obtaining the required results in the following manner:—

Knowing the C.I. No. of the stop, decide on δ', the diameter of the maximum disc of diffusion that will be tolerated; then, under the columns thus ascertained, look out μ in the table, multiply the figure there given by δ, and the maximum difference of focus, α, that can be tolerated between white and blue rays is thus obtained.

Or, in the line opposite the stop of the size under consideration, find a number equal to α, the observed difference of focus for white and blue rays; then δ', the diameter of the disc of diffusion, will 5/2 times δ, the figure given at the top of the column in which α has been found.

It may be observed that either the principal focal length or the position of the nodal point of emergence may vary as different coloured lights pass through a lens. It would not be difficult to investigate these two sources of error separately, but the results would be of little or no practical value.

16. Astigmatism. Approximate Diameter of the Disc of Diffusion in the Image of a Point, with Stop C.I. No. —— at —— inches from the centre of plate = 0·—— inch.

The following is the method of examination for astigmatism:—The room is darkened, and in front of the lens is placed a thermometer bulb, thus obtaining, by means of the reflection of the light of a small lamp, a fine point of light. The lens holder of the testing camera is revolved upwards or downwards about the horizontal axis so that the axis of the lens makes an angle, ϕ, with the path of the rays coming from the thermometer bulb; the angle ϕ is such that the point of observation represents the extreme corner of the plate of the size of which the lens is being examined; that is to say, if in Fig. 20, GG represents the position of the ground glass, then CP is equal to half the diagonal of the plate; this angle has already been found for previous tests. If the lens shows any astigmatism, the image of the point of light can be made to appear, first as a fine vertical line, and then, as the focus is lengthened, as a fine horizontal line. The focal scale is read off at each of these positions, and the difference, γ, between the two readings gives a measure of the astigmatism. But, in order to judge of the amount of astigmatism that can be tolerated, the diameter, σ, of the disc of diffusion caused thereby should be calculated. This is done by multiplying γ, the difference of focal distance of the focal lines, either by $\frac{f}{f'^2}\frac{\epsilon \cos\phi}{2}$ or by $\left(\frac{f}{f'}\right)^2 \frac{\cos\phi}{20\sqrt{(\text{C.I. No. of stop})}}$, where ϵ is the effective aperture, f the principal focal length of the lens, and f' the focal distance when the observation was made. As the thermometer bulb is placed at the same distance from the testing camera as was the object in the examination for achromatism, the ratio f/f' is exactly the same as in that case. The same result may be obtained by the use of the table on p. 771 in the following manner:—Find the value of δ, the diameter of the disc of diffusion, on the supposition that the μ of the tables has the value just obtained for γ; multiply the value thus obtained for δ by $\left(\frac{f}{f'}\right)\cos\phi$, and we get σ, the required value of the disc of diffusion due to astigmatism. This is the quantity recorded in the Certificate of Examination.

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[*] Communicated by Captain Abney, C.B., F.R.S.

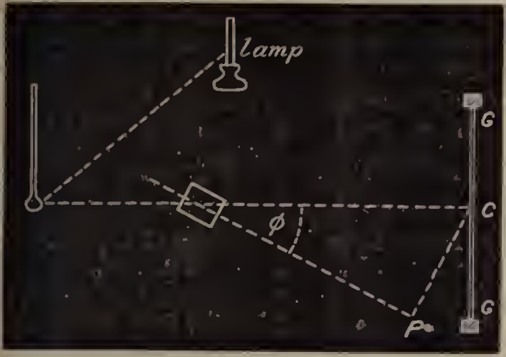

FIG. 20.

That this is the case can readily be seen by reference to Fig. 21. Here AB represents the effective aperture, F_1 and F_2 the positions of the focal lines, and PH the position that the photographic plate would occupy. At F_2 the image appears as a fine line perpendicular to the plane of the paper, and at F_1 it is represented by the line ab; half way between these two points the rays cut the plate in the form of a disc, of which $a'b'$ is a diameter. Any movement of the plate from this position must lengthen out the disc of diffusion in one direction or the other, and this, therefore, is the position that the photographer naturally adopts as his focus. By similar triangles—

$$a'b'/AB = F_2C/F_2N_1 \text{ and } F_2C/CN_1 = F_2H/N_1P.$$

Therefore, since CN_1 and F_2N_1 are approximately equal,

$$a'b' = AB \,.\, F_2H/N_1P, = \frac{\epsilon}{2f'}\cos\phi\, F_1F_2.$$

Now F_1F_2 represents γ, the movement of the ground glass, which was the measurement recorded. In the case of the examination for achromatism, it was shown that it was unfair to conduct the test on a near object without applying a correction, so as to make the result equivalent to an observation on a distant object, and that this correction could be made by multiplying the measurement recorded by f/f'. For the same reason, $a'b'$ must be multiplied by f/f' in this instance to obtain the true value of σ. Thus—

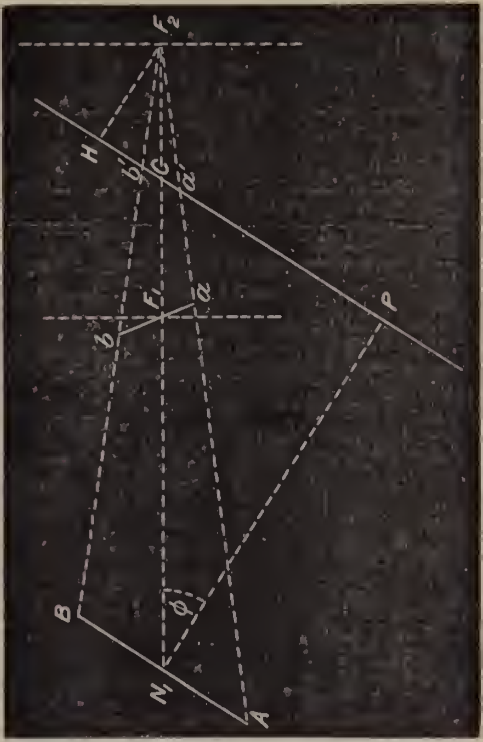

FIG. 21.

$$\sigma = \frac{f}{f'^2}\frac{\epsilon \cos\phi}{2}\gamma = \left(\frac{f}{f'}\right)^2 \frac{\cos\phi}{20\sqrt{(\text{C.I. No of stop})}}\gamma.$$

(To be continued.)

ROCHESTER NATURALISTS' CLUB (PHOTOGRAPHIC SECTION).

Meeting, December 20th, 1892.—Mr. C. BIRD in the Chair.

MR. J. C. BOON gave a very instructive demonstration on the "Wet Plate Process." Mr. Boon explained the whole process in a manner that was most interesting to those present, and answered the questions put to him very fully.

Mr. G. E. RANDALL offered to give a silver medal for the best print to be taken by the members in the neighbourhood of Rochester.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, JANUARY 6, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. I.—CONCERNING HONOURS AND REWARDS.

THE following papers, which I hope to continue monthly, are not intended as serious contributions to the science and art of photography. A little rambling talk on subjects connected with the art we all love is all I purpose, and this talk will probably be found to contain more preaching than teaching—but then we are all getting so wise that teaching is becoming unnecessary.

The withholding of medals at the late Tunbridge Wells Exhibition (an event which is fast rising to historical dignity), whether wise or otherwise, has done good by flashing the search-light of discussion on to what many think is one of our weakest spots—the love of symbols of honour we have not earned, and which have lost their meaning by misuse.

I am not of those who would do away with medals and other rewards of merit altogether, although something may be said on that side. I have nothing to say against ambition, emulation, or competition, all good and worthy of encouragement when healthy; it is the application of these virtues to ignoble uses to which I am going to object.

Ambition is said to be the spur that drives the world; but ambitions are of various sizes. One foolish man wants to rule a kingdom; to another it is all the world to keep his furrow straight. In photography also we have our aspirations, none of them very large, the smallest, perhaps, being that which fights for a cheap medal when more are offered for competition than there are competitors, and the last humiliation is to escape the shower when medals are raining.

Ever since the monkey shed his tail and became a man it is probable that a noble ambition has urged the human animal to try to get ahead of his fellows and have it recorded. Any symbol would do. In the grandest era of which we have any record, and when the standards were at their highest, a few vegetables were thought sufficient recognition for the greatest feats, physical or mental, and the noble Greeks were content with wreaths of bay and laurel. Moreover, they so valued these prizes that they would not make them common, and allowed long intervals between their competitions. How does this compare with our present usage? Our present competitors are satisfied only with prizes constantly supplied in quantity, and our judges have not only to "vote early and often," but are sometimes warned that they are expected to give as many prizes as the limits of decency will permit—and beyond. Silver medals, bronze medals, "very highly commended," and "commended," the quality or rank scarcely matters, they all count; as a recent correspondent truly says, they "pan out much about the same in a year or two." The judges have to exert their utmost ingenuity to differentiate the specimens in classes in which the merit is just up to a dead level of mediocrity, and the fortunate exhibitors are introduced into a fool's paradise. Medals are now so easily obtained that moderately skilful photographers have little inducement to do their best, or even make any special effort; any unexhibited prints, not thought good enough in former years, are good enough now.

Undoubtedly the present tendency of exhibitions and medal-giving is towards the support of mediocrity, and not only to the encouragement of the indifferent, but to the suppression of the good. The moment a really fine picture appears, the object seems to be to snub it out of sight, so that it should not compete with inferior productions. For this admirable purpose, a good deal of ingenious machinery has

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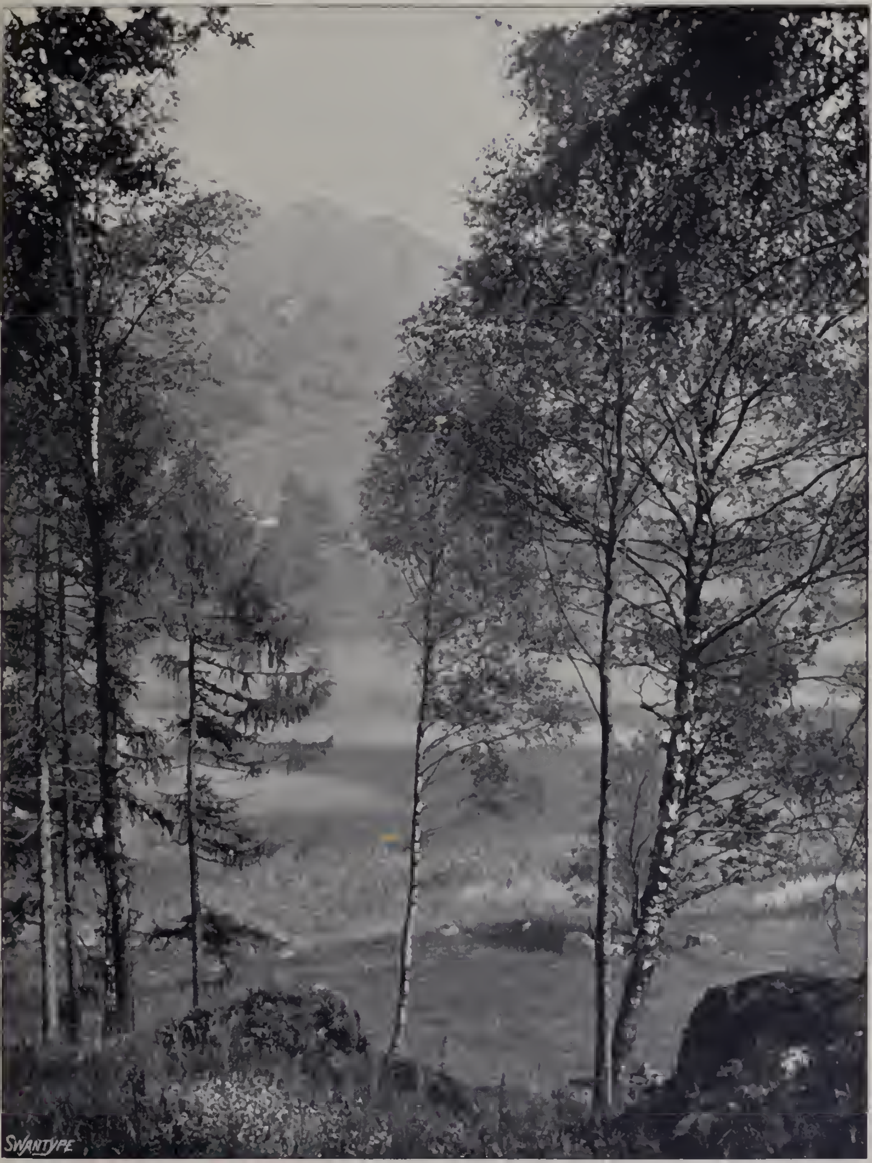

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LOUGHRIGG TARN, AMBLESIDE.

From a Negative by the Editor.

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been invented, from the champion classes, which were not a success, until the recent and more deadly rule, which debars any picture that has ever taken a prize from ever taking another. This levelling scheme seems to be based on some odd notions of making all equal, and reminds us of the "ten little nigger boys" of the old song, who were nefariously killed one at a time until "then there was one!" This one, if he had been a photographer, would have got a medal. All his competitors were disqualified!

This method of eliminating good work, besides being a premium on mediocrity, plainly suggests an easy method of fraud to the less qualified competitor; for the most constant visitors to exhibitions cannot remember every one of the insignificant photographs that is honoured by an award. Trivial prize-takers are soon forgotten, and get another fraudulent chance, while the first-rate picture remains in the memory, and is compelled by prominence to be virtuous, which is not fair and equal!

What is the value of a medal when they are given in such profusion—I don't mean intrinsically: that may be estimated at scarce half-a-crown, if silver—I mean in a pecuniary sense, not the other to which I am coming? What is the value of the medal as now awarded as a badge of honour? It used to mean that you were a master of your art. I cannot accuse any exhibitor of the vanity of thinking so now. He may be ridiculously proud of his medal, but he knows better than that. It has just the value of those white-metal discs, with a blue ribbon attached, that are given to good little boys and girls when it is the interest of the school-masters and school-mistresses to show that all the little boys and girls are good.

Yet the exhibitor still yearns for them, and, unfortunately, an exhibition is now scarcely possible if strong medallic bribes are not offered, and the exhibits divided into numerous classes and sub-classes so that the least should scarcely escape decoration. Committees have to offer medals wholesale, and consent to call the crime "encouraging photography." There has been one exception. The Camera Club showed that a fine exhibition was possible without medals; but that was exceptional, and is easily accounted for. It was not only an unusual honour to be selected to contribute to such an exhibition, but a close inspection of the names of the exhibitors would show that they were very considerably of those to whom the present medal system is distasteful; the two or three who, trying to "make the best of both worlds," also contributed to the Pall Mall show were disappointed, partly, probably, because their work was too artistic to please the taste of a jury of scientific experts.

Even the Photographic Society of Great Britain, whose medals are always valued for their scarcity, this year found it good policy to seek a little popularity by trying to satisfy the craving of exhibitors for prizes. The judges awarded more than double the number of medals given the previous year, although impartial judges are quite aware that the quality of the exhibits did not reach the standard of 1891, indifferent as that exhibition was compared with those of former years.

The present system, moreover, has another serious effect on the well-being of the art. It demoralises the exhibitor, who, instead of allowing fair play to his individuality, works to suit his class and his judges. It puts the judges in a very unpleasant position, and if it goes on we must not be surprised to see them mobbed by the disappointed, as umpires sometimes are by the roughs at football. If they are complaisant and obey the dictate to "give all you can," they suffer in their miserable consciences; if they are just, and only just, it brings down on their doomed heads the execration of expectant medallists, and the cry of "shame" from those journals that, however much they may have said, theoretically, against the plague of medals, have to please their subscribers. One of its worst effects, however, is that it prevents some of the best photographers from lending pictures for exhibition. They object to compete for valueless prizes cheaply obtained, and they know that, besides countenancing a vicious system, if they send their works marked "not for competition" they will be put in a class aside and attract little attention. The sporting instinct prefers to watch the race. This misuse of awards was not originally the fault of our exhibitions. For many years just sufficient medals were offered to stimulate interest and promote good work. The cheapening of medals is due, in some measure, to the action of one or two of our journals. Their incessant competitions are designed, for advertising purposes, to spread as many medals as possible over as many subscribers. I do not object to advertising, and should like to see every photographer read all the journals, but I do not care to see the best interests of the art suffer. The one puzzle for the editors seems to be how to knock out medal winners in the least offensive way. It happens that there are two or three photographers who are thorns in their flesh. The quality of the work of these competitors give them some pretensions to belong to the first rank, or, at all events, the top of the second, but they seem to care more for the number than the quality of their honours, and go for those most easily to be won. These tritons rush in among the minnows and carry off the prey. The ignoble problem is how to prevent the best man winning a second time. The climax is not yet reached. It must end in Tit Bit assurances for half-plates, and as near approach to word competitions with snap-shots as can be done legally.

I think I have proved my case, that present-day medals are worth little more than the metal and alloy. Now let us consider what could best be done for the encouragement of the art, and the restoration of the value and dignity of the medal. So that the aim is honourable the desire for distinction is not unpraiseworthy. The greatest honour is the prize of the hardest fight, and that the prize should have no other attraction than honour, it should have as little intrinsic value as possible. It will follow, therefore, that all medals should be of bronze. The medal that still is of most value in the photographic world is undoubtedly that of the Photographic Society of Great Britain, and this medal is of bronze. For the first two or three years it was made of silver, and I am pleased to remember that I was instrumental in getting it altered to the cheaper metal, also in making the change from the original arrangement in classes to the present method of rewarding only those pictures (theoretically, anyway) that deserve the honour. I would put a severe limit to the number offered; I would abolish classes, and most certainly the absurd distinction between professionals and amateurs. This division is a degradation to the amateur, implying that he must be set aside for lenient treatment; it is not fair to the professional, for usually all prizes open to him are also open to the amateur, while the professional is debarred from competing in the amateur classes. A case of protecting the strong against the weak.

Mediocrity has been fed so much on medals that it is possible it would decline to exhibit. I can only say that exhibitions would be all the stronger for its absence.

Beginners should certainly be encouraged—that is of the utmost importance. This would be better done by society competitions and the awarding of certificates, but not, however, as has been suggested (but in other words) by employing judges whose moderate abilities or amiable nature qualify for giving any amount of satisfaction from a weak competitor's point of view.

"When the little wings grow stronger" will be time enough for the beginners to leave the nest and flutter for the larger prizes in open competitions.

It may be worth while to explain that what I have here written refers only to photographs exhibited as pictures. It seems necessary to say this, as there are those who persist in the false statement that we who, to put it plainly, "mind our own business," take no account of photography as a science. We fully appreciate the enormous scientific importance of photography to the world, but we leave the booming of that to others.

PROGRESS OF PHOTOGRAPHY IN RUSSIA.*

BY C. T. CHESTERMAN (ST. PETERSBURG).

It is now three years since photography was employed for the detection of forged documents at the Central Sessions of St. Petersburg. Such undoubted proofs of its efficacy having been shown during this period, the Procuror of the Law Courts deemed it necessary to petition the Ministry of Justice upon the advisability of securing for the future the aid of the camera for the scrutiny of doubtful documents.

This is a summary of the petition:—(1) That photography has aided the administration of justice in the detection and proof of several forged documents, which otherwise would have remained undiscovered. (2) Three years' trial of photographic work in this direction has proved the impossibility of having recourse to previous methods, which are now as much mistrusted by the public as they are by the judges. (3) That a photographic laboratory be built by the Government, and that the superintendent be bound by oath, and placed upon the Civil Service list.

The Committee of Ministers having concurred with the above, the laboratory was erected, and is to be opened on the 1st of January next. It is to be under the immediate supervision of the Procuror of the Courts of Justice, and the post of superintendent is entered in the VIII. Class of Civil Service officers. A sum of 4,300 roubles per annum will be devoted to the maintenance of the laboratory and its official staff, for which sum all work in criminal cases will have to be executed. With regard to cases coming before the lower courts (disputes of forgeries) the laboratory may undertake such at specified charges. Photographic copies of documents for private individuals will be also undertaken by the laboratory, and a grant of 3,000 roubles was made for the necessary plant. By all this it will be seen that photography, as an agent in the administration of justice, has received a sound foundation in Russia, sanctioned by the law.

At this head laboratory persons will be initiated into the mysteries of the work, and similar institutions will be opened at the criminal courts of Moscow, Kazan Kiev, Odessa, Vilna, Saratoff, Kharkoff, &c.

As heretofore, Mr. Bourinsky will continue to execute the photographic work for the Central Criminal Court until the laboratory is opened.

Our veteran amateur photographer, Count Nostitz, in a letter to the *Photograph-Loobeetel*, mentions the apparatus of M. Makenstein, of Paris, and says that it reminds one of a London firm dating from the sixties (Meagher & Co.), and that of a more recent one, Watson & Sons. This is saying a good deal for English cabinet-making.

At a meeting of the V section of the R.I.T. Society, Mr. V. Sresneffsky showed an Eastman's kodak, with several improvements, and with double backs, as well as their roll-holder: he also gave a detailed explanation of the ingenious shutter attached to it. Mr. Vrobleffsky exhibited a similar shutter, which he had constructed more than two years ago: but he had been obliged to discard the pneumatic brake, as he had found that the least dust inserting itself round the piston immediately stopped its action. In all other respects the camera was pronounced to be very ingeniously constructed.

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* Received too late for publication in the Year Book.

Mr. Khamontoff passed round some exceedingly fine photo-micrographs of snow-crystals taken by Mr. Sixon, of Rybinsk. In a letter accompanying the prints it was explained that the negatives were taken in the open air in full sunshine, with the thermometer at 19° F. In order to prevent the crystals from thawing, the substage and mount of the microscope were blackened, the hands were cooled as much as possible, and a respirator, with a tube thrown over the shoulder, was used while focussing. It was explained that they were the first satisfactory micro-photographs that were ever taken, and were of great scientific value, as, up to the present, only drawings of the beautiful forms of snow-crystals had been available, which, upon comparison with these, were found to lack much in detail.

It is difficult to write anything concerning the detection of forgeries by photography without illustrations. At the Exhibition of the V section of the Imperial Russian Technical Society, a variety of examples were shown by Mr. Bourinsky. One was particularly conspicuous; it was a leaf of a tradesman's book, over which a pot of ink had been purposely upset, in order to conceal some discreditable entry (a charge of fraudulent bankrupcy having been filed against him).

The first negative taken of this ink blot gave very little hope of a satisfactory issue; but, upon careful examination, slight traces of writing were to be seen evidently caused by the pressure of the pen.

By suitable lighting another negative was made, and then several collodion positives were taken from this and superimposed one upon the other between two glass plates. Thus from these faint traces an indisputable copy of the entry was handed to the jury at the trial, and the man was convicted.

Another remarkable instance of the efficacy of photography occurred a short time back in a case where a gentleman cashed a sum of money at a firm of bankers, under the following circumstances:—The book-keeper having received the cheque, made the necessary entry and handed a note to the client for presentation to the cashier. The money was paid; but at closing time the cashier's account did not tally with that of the book-keeper; the merchant had withdrawn a larger sum than he had signed for. The book-keeper, being an acquaintance of the merchant, called upon him, and explained that evidently he had made out an order on the cashier for a larger amount than that required, and that he, the merchant, had cashed it. This, however, the merchant flatly denied, saying he had only received what he had signed for. Suspicion at once fell on the cashier; he had tampered with the order and taken the difference himself. The cashier positively denied doing anything of the kind, and could swear that the larger amount was given to the merchant; furthermore, he said he could not have added anything to the writing on the order, as it had an impression in violet ink *over* the book-keeper's writing, made by a rubber stamp, which was always kept by the book-keeper. The merchant was therefore summoned for the money: but he avowed upon oath that he had not received it, and that the alteration must have been made afterwards.

The order was produced in court; but it was impossible to tell whether any of the writing had been done after the imprint. Someone suggested having a photograph made of it, as the violet colour would come out white in the copy. A local photographer was engaged to do the job; but as the writing in the copy came out equally dark all over, it was concluded that the imprint was made before any of the writing: and so the bank was nonsuited. Now, the cashier, not being willing to make good the missing sum, and, in addition, be branded as a forger, he requested the firm to send the paper to St. Petersburg to be photographed. They did so, and it was put into the hands of Mr. Bourinsky, who at once tried the effect of looking at it through glasses covered with stained collodion; when he had found one that appeared to him to show a difference in places, he photographed the document through this coloured media. The result was that the violet colour was nearly absorbed, and appeared much lighter, also that portions of the writing, even to the end of the wording, were *weaker;* proving that in those places the stamp was superimposed, therefore the merchant must have had the order given to him with the larger amount written on it, and as he had often drawn similar sums before, the cashier paid it without taking any particular notice of it.

The trial against the merchant was renewed: but still he held out that he had not received the extra money. The evidence now being against him, he was convicted and sentenced; only then did he make a clean breast of it, and confessed that he did receive the extra sum of money.

ASTRONOMY AT THE ROYAL INSTITUTION.

AS already notified in our columns, Sir Robert Ball was announced to give a course of six lectures on "Astronomy" (adapted to a juvenile auditory), at the Royal Institution, and the last of the series will be delivered to-morrow afternoon. The attendance at these lectures has been sufficient to cram the theatre of the Institution from floor to ceiling, and those visitors who were not in the building by quite ten minutes before the advertised hour of commencement, 3 p.m., had to content themselves with standing room only. But the time passes away quickly enough while a lecturer of Sir Robert Ball's experience is on the platform, and an hour's standing under such conditions is by no means fatiguing.

Lecture I. dealt with the sun; Lecture II. with the moon. The inner planets furnished the subject of Lecture III.; Lecture IV. introduced us to the giant planets. In Lecture V. the fascinating history of comets and shooting stars was detailed, and in the concluding lecture, tomorrow, we are promised a visit to starland and a review of the scheme of photographing the heavens which is now in progress.

The modern lecturer on astronomy has the supreme advantage of being able to use, instead of the rough diagrams with which our forefathers had to be content, actual photographs of several of the more important tenants of space. Diagrams he cannot altogether dispense with, for only by their help can the relative positions of the members of the solar system, for instance, and their movements, be made manifest to the eye. It is also certain that a better idea of the structure of astronomical instruments is gleaned from sectional diagrams than from actual photographs of them as they stand in an observatory. So that Sir Robert Ball does well to use both, and to employ as well models on his lecture table to make clearer his meaning. The old (Foucault) experiment with the pendulum, to show the movement of the earth upon its axis, was particularly well shown in one of these lectures, and the demonstration is worthy of brief description. The pendulum consisted of a heavy ball of lead hung by a piano wire from the ceiling of the theatre, and held in check by a silken cord. This cord was burnt through so as to give the pendulum a fair start. In the plane in which it swung was placed an electric lantern by which the shadow of the wire was thrown upon a screen, and in a minute or two the position of this shadow was plainly seen to travel farther and farther to one side. This way of showing the experiment was devised, we believe, by Professor Dewar, and it certainly is very effective, and a great improvement upon Foucault's original method.

It is noteworthy that considerably more than half the audience assembled to hear these lectures for juveniles are adults. It is a pleasant way of gaining a little knowledge about "other worlds than ours" without the trouble of consulting books, and it is to be feared that the great majority of the public do not care to dip more deeply into such a subject as astronomy, full of interest as it is for the earnest student. Sir Robert Ball has the merit of never being dry, and has the tact to make his hearers laugh now and then by the quaint illustration he will employ to accentuate a statement. Thus, in explaining the difference in gravity on the moon's surface, as compared with that of the earth, he said that a cricketer suddenly transferred from his present home to the moon would find that he could throw a ball six times as far as he could before. Football under such conditions would be an extremely lively game. While he who followed a pack of lunar foxhounds would not be content with the easy task of jumping a hedge, but would probably take in a hay-stack, and perhaps a canal, in the same jump. In the same lecture Sir Robert Ball, speaking of the world's flight through space, told his audience, very quaintly, that three minutes ago he was addressing them in a place which was now about 3,000 miles off.

A KODAK GATHERING.

A VERY pleasant evening was spent at the Bloomsbury Hall, Hart Street, on Thursday last, when the *employés* of the Eastman Company met for the purpose of doing honour to Mr. W. H. Walker, on the occasion of his retirement from the post of managing director. The proceedings were enlivened by an excellent selection of music, and a couple of scenes from Sheridan's *School for Scandal*. The "Kodak Glee Party" contributed to the first, and the second was wholly due to the initiative of the Kodak Dramatic Club. These two facts help one to understand that the word "Kodak," which was only invented a few years ago—a word which has the unique advantage of having no pedigree or derivation—has "caught on" in other ways besides that which connects it with a certain form of camera. The existence, too, of a glee party and a dramatic club, whose members are drawn solely from the ranks of the Eastman workers, will go far to show that there is a bond of pleasant union among them. And this important fact, which contributes so much to the success of any commercial enterprise, became more apparent when the time came for the chief event of the evening, the presentation of a testimonial to Mr. and Mrs. W. H. Walker, on behalf of the *employés* of the Eastman Photographic Materials Company, Limited, by Mr. A. W. Rider.

The curtain of the little extemporised theatre had hardly fallen on the conclusion of the *School for Scandal* (modestly called a "drawing-room rehearsal," but very well done for all that) when Mr. Rider, the genial secretary to the company, stepped forward, and made a remarkably neat speech concerning the past history of the Eastman Company. He dwelt upon its small beginning —seven years ago—at No. 13, Soho Square, and told of the rapid increase of business, until the original staff of four was now represented by nearly four hundred, most of whom were in the room before him. He also spoke of the universal courtesy extended to every member of the concern, from its highest members to its most humble dependents, by the managing director, Mr. W. H. Walker, and of the many occasions upon which Mrs. Walker had shown the kind interest which she took in the company and its workers. Presently the curtains were drawn aside, and there was revealed a very handsome silver salver of enormous size, which Mr. Rider explained had been subscribed for by everyone attached to the Eastman Company's works. Much applause followed this speech, and Mr. Walker replied in an equally happy vein, telling his hearers how proud he had always been to feel that everyone attached to the business knew that he was trusted to do his duty, without being watched to see that he did it. He also spoke of the impossibilty of the head of a large business being able to carry it on successfully unless this feeling of *esprit de corps* existed between its various members. He thanked them most heartily and most feelingly for their beautiful present, and said that he and his wife would never cease to regard it as a precious possession.

After an interval for refreshments another selection of music was given, and the company separated at a late hour, about half of them making their way to Euston Station, where a special train was waiting to take them back to the little Kodak colony at Harrow-on-the-Hill.

THE FIRST DECREE UNDER THE NEW AMERICAN COPYRIGHT ACT.

THE first decrees entered under the new Copyright Act by which English publishers are enabled to obtain copyrights in the United States, have just been entered in the United States Circuit Court for the district of New Jersey. The suits in which these decrees were made were instituted, by Messrs. Eyre & Spottiswoode, Her Majesty's printers, against the *New York Recorder* Company, and the American Lithographic Company, and had relation to a copyright in an engraving entitled "Little Lord Fauntleroy." Messrs. Eyre & Spottiswoode, who, as proprietors of the "Woodbury Company," publish engravings and works of art of all descriptions, employed Mr. Charles J. Tompkins, an English engraver, to reproduce, in pure mezzotint, the painting by James Sant, R.A., entitled "Little Lord Fauntleroy." This engraving was duly copyrighted in the United States. Shortly after the first artist's proofs appeared in the American market the engraving was copied by the defendants, whereupon the plaintiffs immediately instructed their representatives, Messrs. E. & J. B. Young & Co., of Cooper Union, N.Y., to institute suits.

Mr. Rowland Cox, an eminent member of the legal profession in New York, was retained to conduct the case, and Mr. W. Hugh Spottiswoode went over to represent the firm of Eyre & Spottiswoode. The statement of complaint was based upon the allegation that the engraving had been used in the manufacture of the chromo-lithograph made and sold by the defendants, which fact was supported by numerous coincidences which were pointed out. A preliminary injunction was granted by his Honour Judge Lacombe, based upon an inspection of the engraving and the chromos and expert testimony. The final decrees now entered recognise the rights of the complainants, and provide for perpetual injunctions restraining the sale of the chromo-lithographs.

The painting after which this engraving was made was in the Royal Academy Exhibition of 1891. The infringement complained of consisted of a lithographic reproduction issued as an "Art Supplement" to the *New York Recorder*, of February 28th, 1892, under the title of "A Noble Friend."

The result of this litigation will be satisfactory to all who are interested in British art.

On Tuesday next, at a meeting of the Newcastle-on-Tyne and Northern Counties' Photographic Association, Mr. S. G. B. Wollaston will lecture on the Platinotype process, and will give a complete demonstration thereof.

A GOLD MEDAL FOR MR. IVES.

THE Photographic Society of Philadelphia has given the highest honour in its bestowal to Frederick E. Ives, in special recognition of his work in composite heliochromy.

At the Society's meeting, December 16, 1892, the Board of Directors submitted for approval a report by a committee, from which we make the following extracts :—

Before entering into any description of what Mr. Ives has done, your committee deem it wise they should, in their report, clear the ground of any misapprehensions which might arise from the terms used in dealing with the subject. Mr. Ives's process is not the kind of colour photography for which the world has been looking, and may never find, nor is it "photography in natural colours" in the sense in which those terms are commonly understood. In a technical and scientific sense "natural colours" are those which are produced in any substance by the direct effect of light itself, acting in accordance with the laws of nature. Mr. Ives has, nevertheless, realised one solution of the problem, and the colours which are reproduced from nature by his process are as correct as are ordinary photographs in rendering in monochrome the effects of light and shade. In other words, "composite heliochromy," being a purely photographic process, is subject to the same limitations which circumscribe photography. When a process of photography is perfected which will avoid the defect of flattening the high lights when a sufficient exposure is given to bring out detail in the shadows, and the defect of undue increase of contrast in the middle shades, then the results of composite heliochromy will be perfected in like degree.

Mr. Ives's system of colour photography, which he has named "composite heliochromy," consists :—

1. In the production of a triple photograph or chromogram, one image of which represents, by its light and shade, the effect of light from the object upon the fundamental red sensation, another the effect upon the fundamental green sensation, another the effect upon the fundamental blue-violet sensation, in accordance with the Young-Helmholtz theory of colour vision, and the actual measurements by Maxwell and Abney of the relative power of different spectrum rays to excite the respective fundamental colour sensations.

2. The optical superposition of the three images of the chromogram, either by means of a triple optical lantern or in a table instrument known as the heliochromoscope, in which the image of the red sensation is seen by red light, the image of the green sensation by green light, and the image of the blue-violet sensation by blue-violet light, but with the three blended together to form a single image, which reproduces the light and shade and colours of the objects photographed.

The triple photograph is made by a single exposure, on a single sensitive plate, and from a single point of view, by means of a special camera of Mr Ives's invention, in which the incident light is divided by the partial reflection and partial transmission of light by transparent mirrors ingeniously arranged to secure the projection of three images on a single plane with identical perspective. The sensitive plates employed are sensitive to all the visible spectrum rays, which are made to act in the production of the three images in proportion to their power to excite the respective fundamental colour sensations. This result is accomplished by filtering the light which goes to each image through a selective colour screen, which has been adjusted by experiment in photographing the spectrum itself, to secure in the spectrum photograph a density curve corresponding to the graphic curve of the same sensation in Maxwell and Abney's diagrams. The adjustment of such a camera can only be made by a scientific expert, familiar with the laws of optics and the use of the photospectograph and the photometer; but when the adjustment is once made, the successful operation of the process is brought within reach of any skilful amateur photographer, no more operations being necessary than for the production of an ordinary negative and lantern slide.

The heliochromoscope is a neat table instrument, containing the same system of reflectors as the camera. By its use the chromogram is seen as a single picture, reproducing the natural colours as readily as a stereogram is seen in the stereoscope, reproducing binocular vision.

After a brief review of the history of experiments in this line, the committee gave the following summary of Mr. Ives's claims:—

"1.—A triple photograph, one image of which represents by its light and shade the effect of light from the object upon the fundamental red sensation, another the effect upon the fundamental green sensation, another the effect upon the fundamental blue-violet sensation. This claim dates from November 21st, 1888 (*Journal* of the Franklin Institute, January, 1889), previous to which date no one else had made photographs answering to this description, or recognised the principles involved. Such photographs are obtained by a method of precision, in accordance with actual measurements of the effect of different spectrum rays upon the separate fundamental colour-sensations."—U.S. Patent No. 432,530, July 22nd, 1890. . . .

"2.—A camera producing the triple photograph on a single sensitive plate, by a single exposure, from one point of view."—U.S. Patent, No. 475,084, May 17th, 1892.

It is a well-known fact that many unsuccessful attempts were made to devise such a camera, and that several provisional patents were taken out for ideas that failed to accomplish the desired results.

"3.—The heliochromoscope, the only successful device for optically recombining the three images of the chronogram to form one image on the retina of the eye reproducing the colours."—U.S. Patent, No. 475,084, May 17th, 1892.

Mr. Ives also points out that it is important to recognise that his system makes photographs by the action of all visible spectrum rays, but shows them by means of three kinds of spectrum rays only, and that nobody else saw the necessity for such a procedure, although no other is possible in accordance with the modern theory of colour vision.

It is further claimed that the above-mentioned improvements have:

1. Solved the problem of reproducing the natural colours by photography.

2. Simplified the procedure so much as to make it possible for any good photographic operator to make the photographs, when supplied with the special camera, even if he have no knowledge whatever of colour science.

It appears to this Committee that Mr. Ives's claims are sustained, not only by argument and references, but also by his exhibition of results, which may fairly be said to be wonderful improvements upon anything obtained by his predecessors. In fact, while the results obtained by Du Hauron and others are described as crude and unsatisfactory, Mr. Ives shows by his process in the heliochromoscope reproductions so perfect that it is sometimes difficult to realise that one is not looking at a reflection of the object itself, instead of a photograph.

The Committee of the Board recommended the adoption of the following:

Resolved, that the Board of Directors recommend to the Society the adoption of the following preamble and resolution:

Whereas, Frederick E. Ives, of Philadelphia, has, by the application of his new principle in composite heliochromy (dating from November 21st, 1888), made a practical solution of the problem of recording and reproducing by photographic means the colours of nature: and

Whereas, Mr. Ives has not only in this connection, but in many other ways—notably in the field of photomechanical printing processes, orthochromatic photography, and optical projection — made distinguished contributions to the progress of the art and science of photography; and

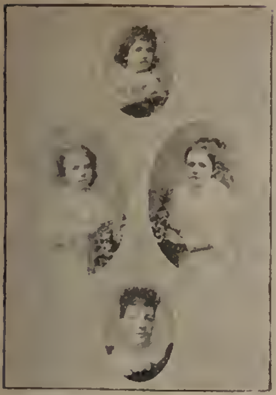
Whereas, the Photographic Society of Philadelphia is incorporated for the special object of increasing and diffusing "the knowledge of those natural laws which relate to the action of light, and particularly to promote improvements in the art of photography"; it is, therefore,

Resolved, That, as a special recognition of the eminent scientific labours of Frederick E. Ives, a gold medal is hereby awarded to him by the Photographic Society of Philadelphia.

The resolutions were unanimously adopted by the Society, there being a large attendance of members.

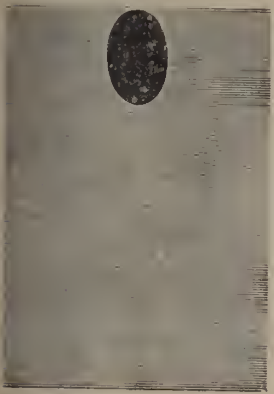
APPARATUS.

Hemery's medallion group portrait system represents a photographic novelty which Messrs. Marion & Co., of Soho Square, are introducing commercially. The leading idea in this system, which is patented, is to substitute for the ordinary family group, which is so often unsatisfactory, separate medallion portraits on one negative, which can be printed at one operation on one card. The taking of each of these portraits would involve a separate posing and exposure, and while the operator would thus be able to make a study of each, they need not all be taken on the same occasion,



thus meeting the convenience of a family, the different individuals of which would probably find it inconvenient to make an appointment for the same hour.

Fig. 1 illustrates the kind of grouped portrait produced by this method; and, although in the case illustrated there are are only four individuals, any number up to nine can be easily combined in the same way. Each medallion group has an appropriate set of masks for making the negative, and these masks fit into a frame placed in the back of the camera. Let us, for instance, trace the method of making a negative which comprises six members of a family. First we insert in the back of the camera the mask A, which gives us a portrait at the top centre of the plate. Then, by using B first in its right-hand position, and then by turning it over so as to make the opening on the left-hand side of the plate, we get two more pictures on the same negative. The same double operation with the mask C gives us two more portraits at the lower half of the plate, when we complete the whole by making a central portrait by means of the mask D. Having developed the negative we associate with it in the printing frame the mask E, and so finish the work. A very slight alteration of the back of the camera, so as to fit it for the reception of the masks, and a front which will permit the lens to be centred for each portrait will be necessary, but beyond these requirements—and a set of masks, which are by no means costly—the medallion group system does not entail any rearrangement of apparatus. The device is one which is likely to catch the public attention, and, therefore, to secure an increase of custom to those adopting it.



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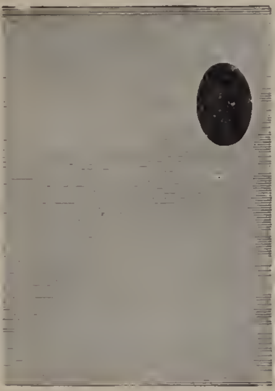

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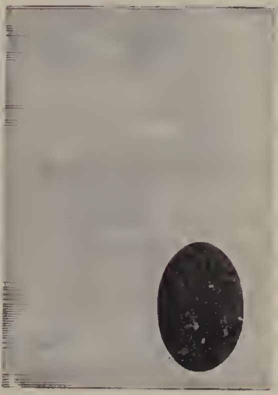

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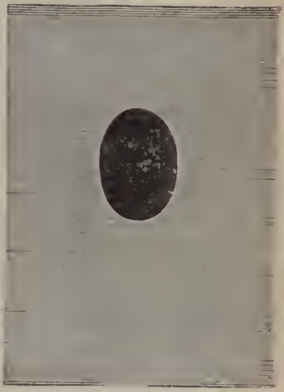

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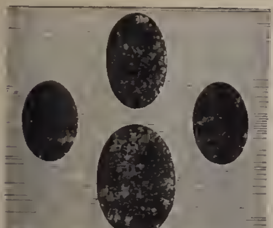
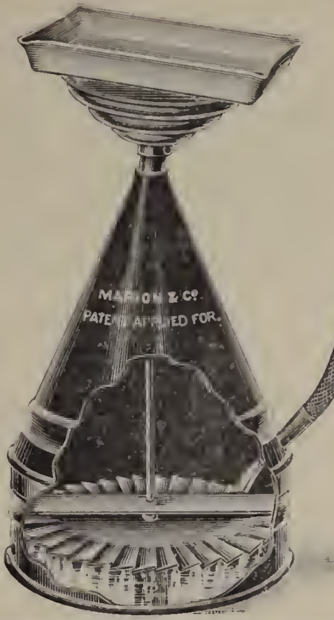


E.

The same firm have recently introduced a new form of rocker—the invention of Colonel Fosbery—which is here illustrated. As will be seen, it consists of a funnel-shaped device, with a platform on top, upon which is placed the developing dish. This platform is thrown into rotary and oscillatory movement by the action of a fan wheel, actuated by water power. The contrivance is designed to stand in the sink, and connection is made between it and the water tap by means of an indiarubber tube. It is light and portable, and is neatly made of japanned tin.



PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

December 29th.—Mr. P. EVERITT in the Chair.

MR. T. E. FRESHWATER inquired how it could be ascertained with the printing-out lantern plates now being sold when the image was printed deeply enough.

Mr. W. E. DEBENHAM said that he had formerly made and printed on plates of that character, and judged the depth of printing by looking through the transparency and negative together from the back. For the lantern it was necessary that there should not have been the slightest shift in printing, and a method of separating plate and negative for examination, which might keep register sufficiently well for ordinary work, might still show a very slight shift when the transparency was enlarged on the screen.

Mr. A. **HADDON** showed a negative taken with a small electric arc-light—one of about 1,000 candle-power. The light was placed nearly in the focus of a concave reflector about two feet diameter, and a sheet of tissue paper hung in front. The light was about nine feet from the sitter, and on the opposite side, at some distance, was a large sheet of paper as reflector. The exposure had been ten seconds with a diaphragm No. 8 on the uniform system. The effect of lighting on the face was considered by the members to be good.

A question was read : " What determines the curvilinear distortion of a single lens, and how can it be modified ? "

Mr. **DEBENHAM** said that the distortion was due to the use of a diaphragm, which caused the different parts of an image to be formed by different parts of the lens. The distortion could be reduced and ultimately removed by bringing the diaphragm nearer to the refracting surface, but in this case the field would be very much curved.

Mr. A. **HADDON** referred to a letter by Mr. T. C. Hepworth in the *English Mechanic*, in which it was stated that certain manufacturers of oxygen supplied gas adulterated to the extent of 45 or 50 per cent. He (Mr. Haddon) hoped, in conjunction with Mr. Grundy, at a future meeting, to show how a user could, by simple means within the reach of everybody, test the amount of impurity present in oxygen. It was arranged that this should be done on January 12th, when members are invited to bring samples of oxygen for testing.

Question : " What substance will dissolve a developed image out of a gelatine plate, in order to test whether any bromide of silver is left unreduced ? "

It was suggested to harden the film with alum, and then to use nitric acid as a dilution of one in five. Another suggestion was to convert the reduced silver into chloride, and then dissolve it out with ammonia, but the complete success of either plan was considered to be doubtful.

Mr. **OAKDEN** inquired what is the advantage of the concentric over other lenses of the rapid symmetrical or rectilinear type. A friend of his in trying the two on a doorway as a test object found certainly no advantage.

Mr. **DEBENHAM** replied that the flatness of field and good marginal definition of the concentric constituted it, in his opinion, the best instrument yet constructed, in cases where greater rapidity was not required than No. 64 N. S., or, perhaps, a somewhat larger aperture. Perhaps the experimentalist who had been mentioned was not aware of the necessity for exposing and focussing with the same opening, or, if that were changed, for making the requisite allowance in focussing.

CHARITABLE LANTERN ENTERTAINMENT SOCIETY.

THIS Society, which was inaugurated last October for the purpose of giving free lantern entertainments to the inmates of our hospitals and similar institutions, has recently given entertainments at the following London hospitals :—

Nov. 15th.—Temperance Hospital, Hampstead Road, N.W. (Women's Ward).
,, ,, .—Temperance Hospital, Hampstead Road, N.W. (Men's Ward).
,, 26th.—Victoria Hospital for Children, Chelsea, S.W (Boys' Ward).
,, 30th.—North-East London Hospital (Children).
Dec. 3rd.—Victoria Hospital for Children, Chelsea (Girls' Ward).
,, 10th.—Children's Hospital, Great Ormond Street.
Dec. 12th.—Paddington Infirmary (Female Ward).
,, 15th.—North-East London Hospital for Children.

In every case the entertainments were very successful, and much appreciated by the inmates, a request for another " show " usually following the conclusion of each. Generally about three sets of slides are shown with a few " comics " and effects, whilst between the sets a little music and singing is provided. The Society gives, even thus early in its career, two to four entertainments each week at London hospitals, and has dates fixed for infirmaries and ragged schools, and it is intended generally to extend the scheme ; but at present it is somewhat hampered in its work, owing to want of sufficient apparatus and helpers. Two biunial lanterns and fittings and oxygen gas bottles are urgently needed, together with slides.

In laying the first report of the Society before the public, it is hoped that those readers who sympathise with the objects of the Society will do what they can to assist it, either by becoming members or making a donation to the funds, or a gift of apparatus or the loan of slides. The joint secretaries are Mr. B. Foulkes-Winks, 2, Pretoria Avenue, Walthamstow, and Mr. F. Simmons, 158, Frances Terrace, Herne Hill, S.E., to whom all communication should be addressed.

WEST LONDON PHOTOGRAPHIC SOCIETY.

December 27th, 1892.—Lantern evening.

SLIDES by Messrs. Bilton, Dixon, Hodges, Lamley, Scanlan, H. Selby, Whitear, and Varden.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

G. C.—Look up paper by Captain Abney on " Researches in Radiation," read in 1885 before the Physical Society at South Kensington.

JAMES R. (Newport).—The subject has already been sufficiently dealt with, and, unless there is some new theory to enunciate, it would not be advisable to reopen it just now.

M. C.—We cannot assert that a law is bad because certain clever men have been known to break it, and the same remark applies to what are generally recognised as the elementary laws of pictorial composition. Your criticism is just, but the law holds good.

ENGRAVER.—The first practical application of bichromated gelatine to photo-engraving purposes is due to Fox Talbot (1852). By referring to the records of the Patent Office you would be able to find out all about this process. A plate of steel was employed, and the etching fluid was a solution of platinum bichloride.

B. B.—We need point out only one necessity for revision of the work referred to—namely, the retention of the old theory of the three primary colours—red, yellow, and blue. This, as you will know, has long ago been superseded by the labours of Young and Helmholtz.

C. D. E.—A very good suggestion, but quite prohibitive on account of the cost that such a course would entail.

O.—The only object in adding the salt to the oxygen mixture is to make the flow of gas from the retort more regular and under control. The manganese should not be in lumps, but powdered, otherwise the mixture is apt to fire inside the retort.

(*Some answers are unavoidably left over until next week.*)

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1793. JANUARY 13, 1893.

LIBRARY

NOTES.

OUR good friends in the United States had an opportunity in November last of photographing a meteoric shower of unusual proportions, and we trust that many took advantage of it. The shower is a particularly interesting one, for it undoubtedly represents the remains of Biela's comet. This comet, which had a period of about six and a half years, was due on one of its return journeys in the latter part of 1845. It came, but in a divided condition, the two halves being separated by a quarter of a million miles. On its next appearance it was still more widely separated, and ever since then its existence as a comet has come to an end, and it appears in a fragmentary condition as a shower of shooting stars.

AN interesting photographic note concerning another comet was the subject of some discussion at a recent meeting of the Royal Astronomical Society. A certain photograph of the *Andromeda* Nebula was taken by Mr. Schooling on October 18th, three weeks before the discovery of Holmes' comet. Thereupon Mr. Schooling looked up his negative, and found upon it a portrait of the new comet. If this image on the negative be in reality that of the comet, the magnitude of its elliptical orbit must be about double that calculated by the astronomers who had only the November observations to guide them. Its period would be fifteen years, instead of about six and a half or seven.

AT the same meeting, it was pointed out by the Astronomer-Royal what an important question it was in the application of photography to astronomy to enlarge the image formed by the telescopic object-glass. Referring to the recently introduced telephotographic lens, he said that Mr. Dallmeyer had supplied the Observatory with a triple cemented concave lens of 3 in. negative focus, for use with the 13 in. photographic telescope, with a view of getting enlarged pictures of the moon and planets. A smaller lens by the same optician will be used for obtaining enlarged pictures of the corona in the next solar eclipse. Some enlargements of Jupiter have already shown that the lenses will be very useful.

WE are informed that the business of the Pilsen Electric Company—who make a *spécialité* of electric lamps for studio work—has been acquired by Messrs. Gwynne & Co., hydraulic and mechanical engineers, whose works are at Brooke Street, Holborn, E.C.

WHEN, many months ago, the steamship *Eider* ran ashore on the Isle of Wight, it was pointed out by one or two scientific men that an intermittent light was better for use in foggy weather as a danger signal than one which was constant. It was easy to see that if this were true some modification of the photographic flash-light was the thing needed, and Professor C. Schirm, of Berlin, has just produced a contrivance of the kind which is about to be tried by the United States Lighthouse Department. The inventor claims that his device will give a flash of four hundred thousand candle-power.

A WONDERFUL amount of light is also said to be manifested by the "lightning cartridges" which have been invented for photographic purposes by Herr Haag, of Stuttgart, which are said to be "dissolved" in one-tenth of a second by means of electricity. With such an aid to portraiture photographs are said to be produced which "preserve the mental expression and momentary play of the features with extraordinary clearness and exactitude."

Can it be this particular cartridge that Mr. Van der Weyde spoke of at the Camera Club a few weeks ago? Said he: I was put into a chair and told that I had better not look at the light. I was, therefore, prepared for a flash; but to my astonishment there was a sudden explosion, and I was almost dashed off the chair on which I was sitting, and was literally thrown on one side by the rush of air, and felt a most painful sensation at the heart—a sudden, horrible sensation. I walked out of the place and said to the inventor, 'You have had an accident?' He replied, 'Oh, no; it's all right. Perhaps I ought to have given you a smaller cartridge.'"

The Exhibition of the Louth (Lincolnshire) Photographic Society will take place on the 26th and 27th instant, and the hon. sec., Mr. F. S. Clarke, invites the loan of pictures. There are no medals and no awards of any kind, the exhibition being established strictly for the advancement of photography in the locality. All pictures sent in should be mounted, but not framed, and the amount of carriage, if stated in the parcel—which should be sent to Mr. Clarke, at 8, Upgate, Louth—will be remitted. The public are admitted to the exhibition without charge.

As a proof of the success of an exhibition based on such disinterested lines, let it be noted that on the first occasion on which it was open for five hours only there were 500 visitors. Last year this number was doubled, and this year, with the hall open for two days, it is hoped that the attendances will be quadrupled. Some of our foremost workers have contributed to the former shows, and it is believed that they will not now hold their hands.

The free portrait dodge has once more cropped up at Folkestone, where, by order of the Public Prosecutor, a man with several aliases has been arrested for conspiring, with another, to obtain money by false pretences, for portraits which are described as "almost worthless." The police seized, besides the persons of the delinquents, a number of letters and about £56 in cash.

Messrs. Fuerst Bros. inform us that they have appointed Mr. Morgan—late of the Fry Manufacturing Company—to give demonstrations of the use of amidol. Secretaries of photographic societies who may wish to arrange for his attendance should communicate with Messrs. Fuerst, at 17, Philpot Lane, E.C.

We are inclined to agree with the *Globe* that it is not wise for an editor to publish the portraits of the members of his staff. It is doubtful whether the public are impressed with the sight of the features of ladies and gentlemen whose names, perhaps, they hear for the first time. The portraits of a Dickens or a Thackeray are endurable, even if the features be uninteresting, but who cares for the portraits of Mr. Jones or Mr. Smith? As a rule, the published portrait of a nonentity pleases only the nonentity and his immediate friends. Nobody else wants it. Why, then, should an editor go out of his way to flatter his staff?

It is difficult to understand the neglected condition into which too many specimen cases of portraits exhibited at railway stations are allowed to fall. One would think if it is worth while for a photographer to pay for wall space, that it would be also worth his while to keep the case clean and occasionally supplied with fresh specimens. Nothing is more depressing than a collection of faded portraits enclosed in a shabby frame, and shrouded with dirt which has crept in underneath the glass. What business can such a mode of advertisement bring to a photographer? Yet this is the rule with the majority of railway station specimen cases.

The Rev. Mr. Haweis has unearthed in the *Fortnightly Review* some very venerable material relating to photographic ghosts. The subject has been threshed out long ago in the photographic journals; but this is an age of "chestnuts," and photographic ghosts appears to be quite fresh to the *Fortnightly*. Judging by one anecdote, it would seem doubtful whether Mr. Haweis is a practical photographer, and we would venture to submit that on such a matter only our experts should speak with authority. Mr. Haweis heard the other day of a young lady who was photographed at Brighton, and "twice the plate came out blurred. The second time she persuaded the photographer, who was about to lay it aside as useless, to develop it. The blurs, on being examined with a magnifier, proved to be faces—all the same face. She at once recognised it as the face of a rejected lover who had died."

We sympathise with this up-to-date Barbara Allen, but we would really like to know something more about the shower of portraits of the lamented Jemmy Groves. When, for instance, were the "blurs" discovered? On taking the plate out of the carrier and previous to development? The context leads us to believe so, or why should the young lady beg the photographer to develop the plate? And where was the young lady all the time? Was she in the dark room, and did she see the blurs, or did the photographer bring the plate out and show them to her? Where ghostly photographs are concerned the particulars should be most minute and precise, as the absence of one particular may account for the ghost. Mr. Haweis seems to believe in the genuineness of the notorious Mumler photographs. If he believes in Mumler he will believe in anything.

MULTIPLE-COATED PLATES.

BY A. PRINGLE.

(Concluded from page 5.)

MR. PRINGLE: I found no difficulty in stripping off the top film in the case of small plates. My remarks as to the effect of over-exposure were based on an examination of both films.

Mr. DAVISON: I should like to ask if it would be possible to coat a plate with an emulsion so as to be as thick as both the coats in the "Sandell" plate; and if so, would not the results of such a plate be *practically* the same? I have used two or three of the plates, but it was merely to get a picture, and not experimentally, and I must say that the development seemed very much the same as that of the "T. C. E. R." plates. That, I thought, was borne out by Mr. Pringle's statement, that where you have given great over-exposure by prolonging development you can get a printable negative, exactly the same holding good with the ordinary thickly-coated "Thomas" plate.

Mr. PRINGLE: I do not think there would be any practical difficulty in getting plates coated with one emulsion as thickly as the two together on the "Sandell" plate; but there is no doubt that a certain amount of value lies in the fact that the two emulsions are not of the same sensitiveness. The lower film takes up what the other is good enough to pass on. Somebody suggested films of graduated sensitiveness. I think that would be a good thing, but it is not practicable. I do not understand Mr. Davison when he says the results are the same with a thickly-coated plate.

Mr. DAVISON: I mean the appearances on development and the printing qualities of the resulting negatives are the same.

Mr. GRANT: I have here two more negatives. One with trees, with the sun behind them shining almost directly into the lens. I gave it ten seconds' exposure, in the beginning of August, and the clouds in it will print, while there is detail in the trunks of the trees on the shady side. That would not have been possible with an ordinary plate and such a long exposure. The other had, I think, two minutes' exposure in bright sunlight, and though there is detail in the interior of the ruin, the clouds are not altogether lost.

Mr. SUTTON: My experiment was made in order to show there was a break in the scale.

Mr. GRANT: In one plate I stripped off the top film, and in the lower the clouds were perfectly distinct, though the foreground was lost entirely, but was quite distinct in the upper film, and the two together would have produced a fairly good printing negative.

Mr. PRINGLE: I have not my negatives with me, but here are some prints which Mr. Sandell has sent, and one of them is from a negative of mine. It is a photograph of a vine-house, and I have never got such a good result under the same circumstances with an ordinary plate. The greenhouse is a low one, the grapes were green, and the sun was shining straight down at an angle of about 80° near noon.

Captain ABNEY: Mr. Pringle has very pointedly called upon me to make some remarks. I made my first investigation into halation fourteen or fifteen years ago, and the results appeared in the journals. Incidentally I may observe that it is rather strange how curiously ignorant are our friends across the water with regard to the work being done in this country. M. Cornu, a French scientist, and a friend of my own, investigated this phenomenon anew. He was unaware the matter was not new until I gave him my paper in which I dealt with the subject. I am not ignorant as to the question of double films. Somewhere in photographic literature will be found an allusion to double-coated films on which I made some experiments. I do not think Mr. Sutton's experiments are on all fours with those of double-coated films. Very many years ago I gave a long description of the theory of development in which double-coated films (collodion at that time) were used. One film was exposed and another was coated on it, and the two were developed together. It was found that an image was developed on the top film as well as on the bottom one. This was proved by afterwards separating the two films. Mr. Sutton's films were not developed at the same time, and though the experiment is interesting, I do not think it is a parallel with the double-coated plate, as the lower film, when it does not produce an image, gives up a certain amount of bromide of silver to give density. Many years ago, when gelatine emulsion first came out, Mr. England and I experimented on the same lines. By using bromo-iodide, you are able to get an orange film, through which it is difficult to get any light on to the back of the plate, and that gives the minimum of halation. In those days we did not rob the plate, but gave it an ample supply of the foods convenient for it. This was before the days of a shilling a dozen for ¼-plates. I tried various combinations of films—gelatine, and collodion and gelatine—and I think it will be found that I gave an account of the results before the Royal Society. You can get the advantage of either a slow or quick emulsion, or you can have one film sensitive to the violet rays and the other sensitive to the red rays. I used them in the latter combination for photographing the spectrum, and so I got a more uniform impression of it than I would have otherwise done. I remember some experiments in which I tried to get different sensitiveness throughout the thickness of the film. The emulsion was thin, and the weather was hot, and so the gelatine was some time setting, and the result was that the larger particles of the silver went to the bottom and the finest remained at the top, there being a gradual scale of coarseness all through the film. A sheet of gelatine paper was placed on it and the whole stripped off the plate, and so the coarsest grains, the most sensitive, were at the top. The result of using this was a very brilliant picture. This was used for the spectrum, the fine particles being sensitive to the blue rays, and the coarse to the red rays. I think there can be no doubt that halation is very much retarded by the use of these double-coated plates. Mr. Pringle said that I gave him a satisfactory explanation as to why halation took place at all, as he said only a very small quantity of light passed through the film. That is so, no doubt; but when experimenting on halation it occurred to me that it would be useful to ascertain optically how halation could be imitated. I took some very fine dust shot and made a plate of that. If you looked through the plate, you could see no halation at all, but if you looked on it you could see the light reflected from the particles. It was curious to notice the different colours of the halation, due to the varying fineness of the particles.

Mr. PRINGLE: I want to say that I cannot help thinking that there is a sort of notion around that I am an exploiter of these plates. It is not so. I have told you, after as careful experiments as I could make, my views about the plates, and I want you to understand that I do not think they are of any real value unless you give them enormous over-exposure. If you take them out and expose them sufficiently you will get a result on the lower film, but I would not think of taking these plates into the field for any purpose unless I were sure to be faced with great halation, and even then I should think twice about taking them and giving such an exposure as would make life a misery. I have treated the subject in a quasi-scientific manner, and am not an apologist for the plates.

Rev. F. C. LAMBERT: I want to show my ignorance, and now that we have Captain Abney and Mr. Pringle here together they may be able to explain something which is very interesting to me. Can they give the conditions under which we sometimes see and sometimes do not see a positive image on the back of the plate on development? I have an idea on the point, and I should like to have that confirmed or contradicted.

Mr. PRINGLE: My idea is that to a great extent it hangs on the state in which the emulsion was when the plate was coated. If the temperature has been high there is a great tendency—which Captain Abney has taken advantage of—for the silver salt to sink and get nearer the glass, and if that occurs one would expect the image to be more easily seen from the back.

Mr. LYONEL CLARK: The primary cause is undoubtedly the emulsion tending to go wrong in hot weather, so that the silver falls down on to the glass and becomes burnished silver and reflects a positive image. Any plate will show it if developed long enough.

Captain ABNEY: I remember in the photographic papers a few years ago there was a great exuberance of joy over the fact that while you were developing a negative image you had a positive image as well. I paid some attention to it, and found that you got it most brilliantly when the plate is not absolutely bright. Do you mean that you get a yellow bromide instead of a dirty-looking bromide?

Rev. F. C. LAMBERT: Not quite.

Captain ABNEY: If you are exposing a window you see the window more yellow than the rest of the image.

Rev. F. C. LAMBERT: Whiter and brighter. In the case of a white collar, say, it comes up white.

Captain ABNEY: I was speaking of after development. I think Mr. Lyonel Clark's explanation is the right one.

Rev. F. C. LAMBERT: I think there is one other element in the case—the temperature of the developer. My plates would probably be over-exposed for most developers, and I develop for half or three-quarters of an hour, and I use water warmer than most people would do. I take it that the effect has been to soften the gelatine, and the larger grains then sink to the bottom; that is equivalent to re-melting the emulsion, and the grains arrange themselves according to size. I have used plates from the same batch, and with quick and cold development I did not get the effect; where the exposure was long, the development was weak, and the solutions of warmer temperature, the positive image appeared.

Captain ABNEY: If you give a short exposure as the development proceeds silver comes from the bottom to the top. I have used eikonogen developer at 150° and got most satisfactory results. There is not sufficient time for the developer to melt the emulsion. In the old days when you used transparent films, there was practically no halation. By using celloidin films or backing the plates you do not get rid of halation. You get it where there is any thickness of gelatine. The minimum is where you use a gelatine film.

Mr. PRINGLE: I only suggested that using a film reduced the amount of halation.

Mr. SUTTON: In using medium isochromatic plates with a yellow screen, I find the halation of fine twigs against the sky reduced to a minimum, and plenty of detail in the shadows of foliage; this being probably due to a greater proportion of yellow rays reflected from the shadows.

Captain ABNEY: There is a curious problem which may be interesting. If you have a plate backed with a stained collodion film what would be the colour of the light passing through it and of that reflected from the back of the plate? My experiments convince me that it is a mixture of white and coloured light. In preparing photographs for an eclipse expedition I put the emulsion on plates with a flashed surface, but the results did not at all come up to my expectations, as I got halation.

Mr. LYONEL CLARK: We tried to make our backing of the same refractive index as the glass, to prevent halation.

Captain ABNEY: I think we should pass a vote of thanks to Mr. Pringle for opening this discussion.

The vote of thanks was carried by acclamation.—*Journal of the Camera Club.*

* * *

ONLY one known periodical comet is due to return in this year. It is the one discovered by Mr. Finlay at the Cape of Good Hope on September 26th, 1886, passed perihelion on November 22nd, and was found to have an elliptical orbit and a period of about six and a half years so it is due in the early part of the summer.

TO CLEAN COVER GLASSES.—Take the cover-glasses from the wool in which they are usually kept, and place them in a beaker, cover with strong sulphuric acid; stir, to get rid of all the air remaining amongst them and leave them for an hour or two. Then wash well in *several* changes of water to get rid of the acid, and place in alcohol, from which they are taken one by one, and wiped dry on an old handkerchief. They are then polished with a chamois leather, and kept for use in an air-tight box.

ON THE METHOD OF EXAMINATION OF PHOTOGRAPHIC LENSES AT THE KEW OBSERVATORY.

BY LEONARD DARWIN, MAJOR, LATE ROYAL ENGINEERS.[*]

(*Concluded from page 7.*)

In considering the combined effect of astigmatism and curvature of the field, it should be remembered that it has been assumed that the photographer would focus his plate in the position PH, as shown in Fig. 21, and that the principal focal surface, PH, was a plane; this is, however, never the case. If the focal surface is curved, it is evident that the best general focus is obtained by observing the image of an object at a position about half way between P and C on Fig. 21. In Fig. 22, which is part of Fig. 21 enlarged, let KL be the position of the plate when focussed in this manner, the distance between KL and PH being therefore due to the curvature of the field. Through b' draw $b'g$ parallel to F_2a'; then, by comparing this figure with Fig. 6, it will be seen that eg in both cases represents the diameter of the disc of diffusion due to the curvature of the field. Since, in Fig. 22, fe represents the longest diameter of the ellipse of diffusion, due to the combined effects of curvature and astigmatism, and since it is equal to the sum of $a'b'$ and ge, the diameters of discs of diffusion due to these two causes taken separately, it will not be unfair to look upon the evil effect of astigmatism as a simple addition to the evil effects of curvature. In using the table given on p. 771, in the manner described on p. 772, it would therefore be better if we subtracted the diameter of the disc of diffusion due to astigmatism from the diameter of the maximum disc of diffusion which is to be tolerated, and used the difference as the δ in the table; we should thus get a more correct notion of the size of the stop that could be used to obtain any required standard of definition. The objection of this use of the table is that the astigmatism, that is, the distance F_1F_2, varies to a certain extent with the size of the stop used during the observation.

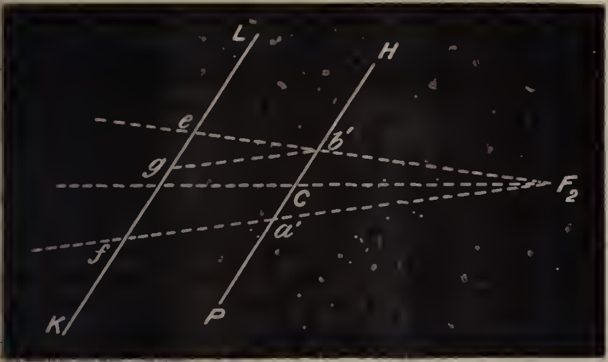


FIG. 22.

In the above discussion it has been assumed that the focal lines are sharply defined. If this is not the case the reasoning here given is defective, because the distance separating the focal lines is then no indication of the amount of diffusion. An exaggerated idea of the amount of diffusion due to astigmatism may thus be obtained by the above method of calculation, for the disc may have only half the diameter thus found. Therefore, unless the focal lines are sharp—that is, unless the image of a point appears as a *very* thin line, first in one direction and then in another—no entry is made in the certificate.

Objections have been raised to the use here made of the term *astigmatism*, when it is intended to mean the effect of spherical aberration on oblique rays; it has been proposed to limit the use of the word so as merely to signify cylindricity in the lenses, such as might be produced by turning them in a lathe with elliptical motion. Whatever may be the theoretical value of this objection, we fear that the use of the term has been so thoroughly incorporated into the photographic vocabulary, both in England and abroad, that it would now be impossible to substitute another expression in its place.

17. ILLUMINATION OF THE FIELD. THE FIGURES INDICATE THE RELATIVE INTENSITY AT DIFFERENT PARTS OF THE PLATE.

With C.I. Stop No. .		With C.I. Stop No. .	
At the centre...............	100 :	Ditto.....................	100
At inches from centre	:	Ditto.....................	
At inches from centre	:	Ditto.....................	

The intensity of illumination of the field is always greatest near the axis of the lens, and falls off more or less rapidly towards the edges of the plate. The lens should therefore be examined with the view of ascertaining if this inequality of illumination is greater than that which experience shows must be tolerated under given circumstances. The apparatus employed for conducting this test is shown in Fig. 23, the method being devised by Captain Abney. There is a fixed lamp, L, the position of which is not changed during the observations; F represents a paper screen, placed in that position in order to give a practically uniform source of light; O is the lens, which is fixed in a frame, not shown in the sketch, revolving about the pivot N; by means of a suitable adjustment, this axis, N, is made to pass through the nodal point of emergence of the lens. At S there is a sheet of cardboard with a small hole in the centre at H, and this screen, hole and all, is covered with thin white paper on the side away from the lens; the distance between H and N is always made equal to the principal focal length of the lens; the bar D is made to cast a shadow from the movable lamp M on the paper just over the hole in the cardboard; thus, in this shadow, the paper is illuminated entirely by transmitted light from the lens, whilst the paper round it is illuminated entirely by the light of the movable lamp.

An observation is made in the following manner:—The lens is first placed in such a position that its axis passes through the hole H; the lamp M is then moved backwards or forwards until the transmitted illumination of the paper at H is made to match as nearly as possible the reflected illumination of the paper round it; the distance between S and M is then noted. The lens is now placed in the position shown in Fig. 23, where AB represents the length of the diagonal of the plate for which the lens is being examined, and where the angle ϕ is half the angle of field under examination. The balance of light is re-adjusted by a movement of the lamp, and the distance MS is read off a second time. By finding the inverse ratio of the square of these two readings, we thus obtain the ratio between the illuminations at P and H, the lens being in the position shown in the sketch, and the object being supposed to be equally illuminated in both cases. But what is wanted is the ratio between the illuminations on the plate at P and A; this is found with perfect accuracy by multiplying the ratio of the illumination at P and H, as above obtained from the observations, by $\cos^3 \phi$, and this result is that which is entered in the Certificate of Examination. The relative illumination of the centre and of any part of the field can, of course, be obtained in this manner, in the above instance the corner of the plate being the point chosen.

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[*] Communicated by Captain Abney, C.B., F.R.S.

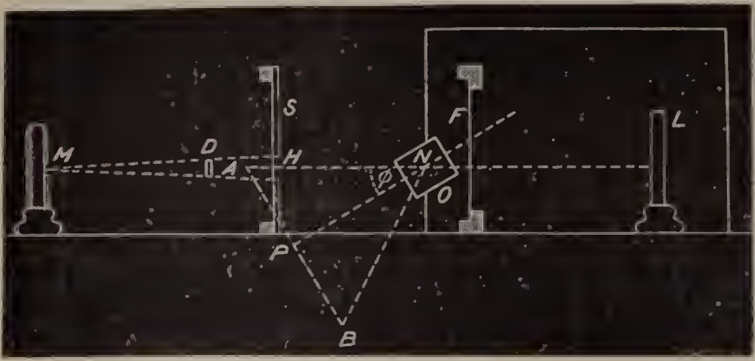

Fig. 23.

This test may with advantage be made with the largest stop supplied, and also with the stop which has been shown, under test No. 13, to give good definition over the whole plate.

It cannot, however, be denied that there are objections to this method of examination. The fact that the illumination of the plate is not uniform is due to several causes :—(1) The amount of light which passes through any aperture evidently diminishes with the obliquity. (2) With lenses not free from distortion, the effective aperture itself varies with the angle of incidence. (3) The amount of reflection from the surfaces of the lenses, and consequently the amount of transmitted light, varies with the angle of incidence. The method of observation above described may be said to fully take into account these three causes of variability in intensity. Then again (4) the light falling on the plate varies inversely as the square of its distance from the nodal point, and also (5) with the obliquity with which the rays strike the plate. As far as these two latter considerations alone are concerned, it is evident, therefore, that the illumination on the plate varies as the third power of the angle incidence, and also that by multiplying the result obtained on the screen at H by $\cos^3 \phi$ we obtain the required result on the plate at A. Thus the record in the certificate includes all these first five causes of irregularity of illumination. But there are other causes which are not correctly represented in this method of examination. In lenses not free from distortion the nodal point of emergence varies in position with the angle of incidence, and as the pivot N does not shift its position with reference to the objective during the observation, the condition of illumination of the photographic plate cannot be accurately represented. This is probably a trifling cause of inaccuracy; but one somewhat serious source of error remains to be mentioned. The method of examination does allow for (6) the variation of illumination due to the different amount of glass through which the oblique pencils have to travel; but, as the observation is made by eye, no allowance can be made for the fact (7) that the actinic rays may be affected in this manner out of all proportion to the apparent variations produced in the visible rays.

The method of examination adopted at Kew assumes that the light transmitted through the paper, as well as that reflected from the paper, varies in amount with the intensity of the incident light. Captain Abney informs me that his experiments prove this to be the case. But in making the observation the eye should be placed in the same position during both readings; for we have no reason to suppose the transmitted and reflected lights vary in the same way with the angle of vision.

It is impossible to suppose that the screen F will be illuminated with perfect regularity, even near its centre, and this must be a source of error, though probably a negligible one. When the axis of the lens passes through H, the rays which are brought to a focus at that point will be parallel to each other as they enter the lens; but when the axis of the lens is inclined this cannot be the case, for H will no longer be on the principal focal surface; the screen F should therefore be brought as near the lens as possible, as by that means the part of the screen from which the light comes will be more nearly identical in the two cases. The lamp L should, moreover, be placed as far from the screen as practicable, so as to make the illumination as uniform as possible. With lenses in which the nodal points are some distance apart, the part of the screen from which the light comes will vary considerably with the inclination of the axis, and considerable errors might be introduced by uneven illumination of the screen.

In deciding on the quality of a lens as regards the illumination of the field, this test should be considered in connection with test No. 10, under which heading are given the angles of the cones of illumination. With regard to the normal use of any lens, except perhaps such as are specially designed for portraiture, certainly the whole of the smallest stop, and, as a rule, the whole of the largest normal stop, should be visible from the whole of the plate: for if the plate extends much beyond the limits of the inner cone (outside which the aperture begins to be eclipsed) the falling off of density near the edges of the plate will be a serious defect in the photograph. When considering the part of the field lying within this inner cone, it is to be noted that the wider the angle which the lens covers, the greater is the inconvenience caused by the diminished density near the margin if the stop is in front of or behind all the lenses; the intensity of illumination of different parts of the plate can be shown in this case to vary approximately as the fourth power of the cosine of the angular distance from the axis of the lens, and in cases where the stop is between two lenses, the limits of variation will be the third and fourth powers of the cosine of the angle. The following table is therefore inserted to give an approximate idea of the decrease of illumination as we recede from the axis of the objective, the truth lying *theoretically* somewhere between the two limits here given:—

ϕ.	Cos^3 ϕ.	Cos^4 ϕ
0	1·00	1·00
5	0·99	0·98
10	0·96	0·94
15	0·90	0·87
20	0·83	0·78
25	0·74	0·67
30	0·65	0·56
35	0·55	0·45
40	0·45	0·35
45	0·35	0·25

Eminent lens makers have spoken of the illumination produced by their lenses as being uniform from the centre to the margin, but our experience is that the decrease is even more rapid than here indicated. The above table shows how very objectionable is the use of wide-angle lenses whenever they can possibly be avoided. It shows, moreover, that the theoretical exposure for different stops should be materially modified according to the angle which the lens covers; for instance, taking the last column to represent the truth, it would be right, even though the stops in the two cases had the same C.I. number, to give half as much exposure again with a 90° objective as with one only covering 40°, in order to get the same mean exposure over the whole plate.

In connection with this test it may be mentioned that the most serious omission in the Kew examination is that there is nothing to show the actinic transparency of the glass. A slight yellow tinge in the lenses, which would not be noticed by the eye, might yet be sufficient to seriously affect the rapidity of the objective. But no test could be devised to investigate this point which did not introduce photographic methods, and, as already stated, the consideration of expense put such operations out of consideration for the present. I should like, if possible, to have introduced some test which would have at the same time indicated the actual rapidity of the lens, and also the actual falling off of density towards the margin of the photograph; with the aid of photography this would not have been difficult, and a plan of this kind would have been adopted but for the cost. This subject is, however, still under consideration by Captain Abney.

A SHEET FORM OF MAGNESIUM FLASH-LIGHT.

BY C. B. READER.

THERE are difficulties attending the reduction to lantern size by means of artificial light which render the game hardly worth the candle, and still it is absolutely necessary frequently, even from quarter-plate, to reduce in order to produce the best effects. At this time of the year that erratic and variable quantity "daylight" is unavailable in the majority of cases, and to become entirely independent of it with respect to reducing and enlarging we require a light which will illuminate a large area with perfect evenness, and still give sufficient intensity to bring the necessary exposure within a reasonably short time. While experimenting in this direction the simple fact that the portion evenly lit corresponded, more or less, with the size of the flame used, led us to conclude that when we could produce a sufficiently large flame our object would be attained. A great many ways in which this might be done have been carefully considered and tested, and found wanting; in the best cases the enormous heat evolved was against them.

But, notwithstanding, Mr. Potter and myself claim that by a simple modification we can induce an old friend to serve our purpose.

We claim to have constructed a means of illumination which is perfectly even over a practically unlimited area, is economical and easy of manufacture, and one which will give good and satisfactory results; and though we claim this, we respectfully submit the idea as a crude one. To put the matter briefly, this light is simply our old friend the magnesium flash-light, but in sheet form.

Equal quantities by weight of magnesium powder and chlorate of potash are placed between sheets of tissue paper and this fired while suspended parallel with the negative.

In practice the following difficulties have been met with: the carbonised portions of the paper have obstructed the light somewhat, the uneven sprinkling of the light-giving powder has been found detrimental to the best results, and the smoke evolved has been a source of annoyance and discomfort.

These difficulties have been overcome, firstly, by using pyroxyline instead of ordinary paper; secondly, by adopting a "pellet" system of spreading the powder; and, thirdly, by enclosing the luminant in a smoke trap or box.

Demonstration (half-plate size).—A piece of $\frac{1}{16}$ inch zinc about 8 × 6 inches is perforated with holes $\frac{3}{16}$ inch in diameter, every half inch (actual number 117). This, laid on a sheet of the paper, has twenty grains of the mixture spread over it and swept into the perforations; the zinc being removed, it leaves "pellets" containing about $\frac{1}{6}$th of a grain each; a slightly starched or pasted similar sheet placed on top completes the operation, drying under slight pressure being all that is required.—*Extract from a paper read before the Liverpool Amateur Photographic Association.*

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, JANUARY 13, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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THE ELECTRIC LIGHT FOR PORTRAITURE.

THERE are many days at this season of the year when portraiture is impossible. The photographers may have the best of studios, the most expensive and reliable apparatus the quickest plates which can be obtained, but without sufficient light he is powerless. More often than not daylight exists only in name, for a heavy mass of fog intercepts it, or a black, sooty cloud, belched from a million chimneys, is hung like a pall above the houses, and day is turned into night. Urban photographers have therefore become alive to the necessity of employing some form of artificial light, so that their work shall not come to a standstill, and for many reasons the electric arc-light is found to be most suitable to the purpose.

A few of our leading photographers have employed the electric light in their studios for some years past, and their fellow-workers generally are certainly indebted to these pioneers for having shown how this form of illumination can be employed to the best advantage; and in acknowledging the credit which is their due we must point out that they have really borne "the burden and heat of the day" in a way that many do not at once appreciate. Thus Mr. Van der Weyde started the electric light fifteen years ago with a current obtained from a 120-cell Grove battery, and no one who has not actually worked with a primary battery of this description, or with its brother, the Bunsen battery, with their fuming acids, their plates which require cleaning and amalgamating, their constantly corroding connections, can appreciate the trouble, work, and cost which such an installation entails. Later on, this cumbrous battery was exchanged for a Siemens dynamo machine, worked by a gas engine, the first recorded instance, by the way, of a dynamo being actuated by such a motor, until at length the gas engine and dynamo have been superseded by current drawn from the public mains. It will thus be seen that those who now wish to adopt the electric light as an aid to portraiture have the ground well cleared for them. They need not trouble themselves at all about the generation of the current; that is all done for them; they merely have to consider the best means of making it available for the particular purpose in view.

Here, again, they are once more indebted to the pioneer workers to whom we have already referred, and it is noticeable that one of these good men and true shows no inclination whatever to keep his knowledge to himself. In April last, Mr. Van der Weyde, at the Society of Arts (Camera Club Conference), not only gave an interesting account of his labours in this direction, but actually gave a demonstration of the method which he had adopted for applying the electric light to photographic portraiture. In his studio it has, we believe, altogether supplemented daylight, and he has stated that all his exhibited pictures, without exception, have been due to its rays.

With the electric current ready to hand, an installation for studio use need be neither difficult nor expensive, and we see no reason why a photographer of mechanical tastes should not execute a large part of the necessary work himself. But let us note, first of all, what the requirements are over and above the necessary current, which he will obtain from the street mains. The current must be brought into his premises and carried to the studio by leads of suitable capacity, and this part of the work must be done by a skilled electrician, under conditions laid down by the Board of Trade, or the fire insurance company will demand extra premium. These leads or wires should terminate at a switch board, by which the current can be turned on or off as required, and from the switch other wires will form a connection with the lamp or regulator.

This lamp, or regulator, may be of far simpler form than the somewhat complex arrangement used for ordinary street illumination, for it is not intended for continuous use, but is merely required to give light for a few seconds at a time. It need merely consist of a couple of holders for the two carbon rods, with a mechanical arrangement, by which they may be made to touch, and then separate, to a certain degree, from one another. By this movement the electric arc is established between them. But in order that the rays from the light shall not fall direct upon the sitter, the regulator is placed within a parabolic reflector, whitened inside, its direct rays being intercepted by a suitable central screen. The regulator, too, must be so adjusted that the cavern formed in the positive carbon, from which the greater portion of the light proceeds, must face upwards towards the white reflector, the whole arrangement providing a close imitation of the light reflected in nature from a strongly illuminated white cloud. The parabolic reflector and its belongings should be so hung with a counter-weight that it may be moved from side to side, and the rays from it concentrated on any particular portion of the model. It will thus be seen that an installation of the electric light for purely photographic purposes is by no means a serious or expensive undertaking. As to the cost of maintenance of an arc-light, which is not required continuously, it can be almost disregarded. Certainly it would be less than that demanded for the maintenance of a single lamp of the incandescent kind, which would be in constant use as a general illuminant.

ON THE BEST FORM OF MOUNTING FOR A LARGE REFLECTOR.

BY A. A. COMMON.

A SILVER on glass mirror of 8 ft. or 9 ft. aperture seems now to be possible, and it becomes worth while to consider the best way to mount such a mirror for astronomical purposes. Opinions will differ as to the optical arrangements most suitable, but the Newtonian form seems, in my opinion, to be the best for many reasons that it is not necessary to go into now. The best use of such an enormous telescope would probably be to explore and discover, and this would naturally be best done by using it as a visual telescope, for which purpose a focal length of about twelve times the aperture would perhaps be most suitable, giving for the smaller mirror above mentioned some 96 ft. focal length.

To mount such a telescope equatorially and put a dome over it in the usual way, would be a most costly undertaking, and even if the money were available it is very doubtful if any form of equatorial would be the most suitable. The difficulty of providing access to the eye-end for the observer and of following the movement, especially when we remember that off the meridian the upper part of the tube must be rotated, is one easily got over.

The equatorial movement is necessary for photographic and spectroscopic work, but here a very much shorter focal length can be advantageously used. For visual work it is undoubtedly the best, but it may be obtained at such a sacrifice of advantages that could otherwise be obtained, that it might be worth while giving up the one for the others.

The chief consideration in designing a mounting for such an immense telescope would be to keep the cost as low as possible. The first thing, therefore, is to give up the equatorial mounting, with its expensive and heavy work, and adopt some kind of altazimuth mounting. We have had large reflectors mounted in this manner. The plan used by Sir William Herschel in mounting his four-foot is typical. For the work of exploration it answers admirably, and the observer is provided with a fairly safe position. There are, however, many objections, such as the close tube, the absence of protection from the wind and rain, and the want of perfect protection and comfort for the observer. Keeping in mind the requirements that experience has shown to be important in designing a reflecting telescope, particularly the use of a skeleton tube instead of a close one, easy access to the mirror for covering or removal, movement in one plane only, &c., and endeavouring to get the very best possible conditions for the observer, I have been led to devise a form of mounting that does certainly offer every advantage that I could wish, excepting that of equatorial motion. The facilities for movement in both directions are so great that I have not any doubt that an apparatus could be designed that would work well enough to keep the object under examination in the field of view in a sufficiently steady manner.

I would take as a basis for the mounting of the telescope that form designed by the late Dr. Draper, and described by him in his paper "On the Construction and Use of a Silvered Glass Telescope," published by the Smithsonian Institution. (The earliest account of a mounting on this principle that I know is in Smyth's "Celestial Cycle," Vol. II., p. 540; this is Miss Herschel's telescope, made probably by Sir William Herschel.) This form of mounting is, no doubt, so well known that it is hardly necessary to do more than mention that the telescope is hung by one end on trunnions, the eye-end being in one of them, which is made hollow for the purpose. The counterpoising of the free end of tube with mirror attached is effected by weights carried at the ends of rods supported at their lower ends and connected with the tube by iron wire ropes. The square framework carrying the tube and counterpoises revolves on a central pin, so the eye-end is carried round in a circle of about the diameter of the focal length. I would use such a framework as this, but double the length, with the telescope in one half and the counterpoise weights in the other. The centre of motion I would place exactly under and midway between the trunnions, the eye-piece end being about 5 ft. from the centre of motion, causing a necessary movement of the observer of at the most 30 in. per hour.

Instead of a tube connecting the mirrors, it would only be necessary to have two lattice girders braced together at the top and bottom. For a few feet near the trunnions a tube would be needed; but, instead of putting any more tube, I would enclose the framework containing the mirrors entirely, making a large dark chamber, the connection being made at the trunnion end by a flexible material.

The square framework carrying the dark chamber which forms the telescope, and the counterpoise weights in the other side, would rotate on a central vertical pin, the greater part of the weight being taken off by floating a suitable circular tank in water. The mirror end of the two lattice girders could slide along an arc of a circle, so that, by suitable gearing, an end movement could be given in altitude, a similar movement in azimuth being obtained at the edge of the circular tank. We should thus have a complete telescope capable of being pointed to any part of the heavens.

To shelter this from the wind and weather, and to protect the observer, I would enclose the whole in a framework covered with any suitable material, and of such a shape as to come close up to the upper end of the tube near the trunnions, where the chamber in which the observer could sit would be placed. The whole of this outer framework would run on a circular railway, and could be made sufficiently wide to provide for two or three hours' continuous movement of the contained telescope without any alterations, the only opening being a flap shutter at an angle of 45°, covering the open end of the telescope when not in use.

Access would be obtained for the observers by suitable stairs on the outer framework, which, being entirely detached from the inner telescope, would not affect it.

There are many matters of detail which would have to be worked out, but it will be found that the form of mounting I have indicated here is one that offers many advantages, particularly as regards the question of cost, while it provides for the safety and comfort of the observer absolutely.

There are two modifications in this form that are worth consideration—the first, that the second part of the frame carrying the counterpoise weights in the above-mentioned plan might be dispensed with, as well as the covering of inner framework, counterpoising it by weights in the floating tank. This would reduce by nearly one-half the size of the outer covering, but it would be attended with this disadvantage—the wind would have enormous power in the outer covering, as the centre of rotation would be near one end. The other modification is to have the framework containing the telescope rotating exactly on the same plan as Dr. Draper's, and enclose the whole in a fixed circular house similar to his, with a provision for carrying the observer similar in general character to his, making it, in fact, exactly on the lines he has laid down.

The first modification would perhaps be the best form altogether, as the sides and ends of the outer house could be made with a considerable slope, so as to reduce the upsetting power of the wind. This would retain the important position of the observer as close as possible to the centre of motion of the telescope.—*Monthly Notices.*

THE NEW DECIMAL ASSOCIATION.

WHEN in the month of June, 1891, a combined deputation from the New Decimal Association and the Associated Chambers of Commerce waited upon Mr. Goschen, he, in reply to their request that a Select Committee should be appointed to inquire into the need of reform, said, that he would not oppose the appointment of such a Committee, but that before any decided move on the part of the Government could be made, the popular voice must be heard expressing a desire for the proposed change. Since that date the New Decimal Association has been actively engaged in distributing information on the subject and in securing extended support. The present Chancellor of the Exchequer and President of the Board of Trade have been in turn asked to hear the views of the leaders of this movement, and have promised to receive a deputation on the 25th instant.

When it is mentioned that it is expected that the Duke of Westminster and other peers, the Agents-General for Victoria, the Cape of Good Hope, and Queensland, several members of Parliament, and delegates from the principal Chambers of Commerce, and from the Trade Councils of Manchester, Sheffield, Glasgow, &c., have promised to take part in the proposed demonstration, it will be recognised that there is some reasonable evidence put forward that the subject is obtaining sufficient interest to warrant the demand of the New Decimal Association for the appointment of a Select Committee to inquire into the whole question.

This subject has lately received much attention in the United States of America and in the Colony of Victoria. On the 21st September last the Melbourne Legislative Assembly adopted a motion favouring a universal union for the introduction of the decimal system in money, weights, and measures. In the same month the Trades Union Congress at Glasgow passed a resolution in favour of the adoption of the system, and directed its Parliamentary Committee to do their best to secure that result.

When it is remembered that there are over four hundred millions of the globe's inhabitants using the metric system, it must be admitted that the New Decimal Association makes out a strong case for the need of reform in our present complicated system of weights and measures, especially when it is remembered that, were England now to adopt the metric system, it is quite reasonable to believe that one universal system of weights and measures would rule throughout the entire globe. Not the least argument in favour of reform in this direction is, that by making the proposed change the time at present expended in our schools in learning the almost endless tables of weights and measures and sums of compound arithmetic would no longer be necessary, and a saving of a period of time equal to one year's training would be effected.

It is much to be hoped that Sir William Harcourt and Mr. Mundella will give all the assistance they can in support of the object of the movement—viz., the adoption at an early date of the metric system of weights and measures in the United Kingdom.

PROGRESS IN PHOTOGRAPHY — A CRITICAL INQUIRY.

BY J. C. ANNAN.

IN connection with the late Exhibition of the Photographic Society of Great Britain it is announced that "the Council have determined to endeavour to obtain yearly such a selection from the pictures of the Exhibition as shall show the progress of the art from year to year." This resolution opens up a very interesting question—viz., Is there a regular progressive movement in photography? Is the general work shown in exhibitions now better than that exhibited one, two, or three decades ago, and if so, in what direction is the improvement manifested? Is it the general mass of the work which is supposed to have reached a higher level, or can it be shown that the best results of to-day are superior to the finest photographic pictures of ten, twenty, or thirty years ago? The resolution I have read certainly infers that there is a continual progression, and in the pride of our time and of our own work we are apt to endorse the opinion without giving it much consideration. I propose in this paper to discuss the question in as fair a spirit as possible and see where it leads us. It will be necessary for this purpose to define photography, for it is a very wide term, and spreads its ever-widening wings over a vast number of operations and variety of results. It is often called an art-science, and, in a sense, correctly so, but we require a much fuller definition. There is an art photography and a science photography. These are closely associated with each other, and without the one we could never have had the other; but they are separate arts, of different natures, and must not be confounded. This distinction is not sufficiently appreciated. Any one conducting photographic operations is termed a photographer, and to the lay mind a photographer is as distinct a genus as a baker or a bricklayer, only varying in comparative ability. It will be found, however, that science and art will not mix readily, and we need not be surprised at this when we consider how vastly different are the essential principles which govern each. From the beginning of our civilisation science generally has been unmistakably progressive, and it is natural that it should be so. Nature is governed by exact forces which act and react upon each other by certain definite laws, and these are gradually being evolved by our scientific thinkers. Certain effects are remarked and noted, until by combined observation they are accepted as absolute facts. In course of time further experiments are made and fresh discoveries result.

CHEMISTRY AND OPTICS.

As in science generally so in photographic chemistry and optics: the original discoveries of Baptista Porta have been expanded and comprehended until now lenses of wonderful precision may be obtained for every department of photographic work. In the same way Sir Humphrey Davy's experiments on the action of light on various chemicals have been so fully developed that there is now an indefinite and ever-increasing number of methods by which the image gathered by the lens may be held and reproduced. No one will deny that there is progress in the direction of scientific photography, and there are many departments of photographic work which do not make any pretension beyond that of being scientifically useful. In this sense alone photography has been of inestimable service to the astronomer, the naturalist, and the engineer, and year by year these scientific workers are finding the means at their command more complete and useful. However, only a very small percentage of the specimens shown at exhibitions belong to any of these scientific classes, but are shown as pictures possessing more or less merit as works of art. Has the progress in this direction been as steady as in the purely scientific?

"THE LATE EXHIBITION."

Glancing over the various critiques of the late Exhibition of the Society of Great Britain, it will be noted that the *Daily Chronicle* says of the collection "that it is of greater merit than that of any previous year." The *Daily News* considers that "the level of artistic attainment is well maintained." The *Morning Advertiser* says, "There is a general improvement to be noticed in the majority of the pictures;" while the *Standard*, which prefaces its remarks by the statement that those who practise photography are usually artists, maintains "that the work is of a higher standard than that of any previous year." The *Times*, however, considers "it difficult to award to the Exhibition unqualified praise," and the *St. James's Gazette* is very severe in its criticism indeed.

THE CAPACITY OF ART AND ARTISTIC FEELING.

Not having seen the Exhibition, I have no intention of discussing its merits or demerits, but simply wish to bring the fact forcibly before you that there is a difference of opinion on the matter. Meanwhile, let us examine the nature and capacity of art or artistic feeling, and note wherein it differs from that of science. The latter we have seen to be progressive and accumulative, one generation continuing the work of their fathers, adding, as it were, fresh pages to the book of knowledge. In art, let it be pictorial, poetical, or musical, we find quite a different state of matters. Men are born with a certain capacity for appreciating that which is beautiful in form and colour, and natures which have this faculty strongly developed have from time immemorial experienced a desire to reproduce, in some way, that which in form or colour has fascinated them. These reproductions may be to others absolutely unintelligible, but are perfectly understood by natures of similar disposition or temperament of their own time and all subsequent periods. Stones may be cut with more ease now than they were 2,000 years ago, but the forms expressed then were appreciated and enjoyed from the same standpoint by those who produced them as they are by ourselves to-day. It is possible that, owing to the spread of culture, there is a greater proportion of the people of to-day capable of appreciating their worth and enjoying their beauties—although this is problematical—but in any case the pleasure derived is precisely the same. And, with all our more favourable circumstances, the best products of these times cannot be excelled, rarely rivalled, in our own highly civilised and cultured nineteenth century. So, in painting, the artist has no longer to grind his own colours or prepare his own canvases or brushes; he has probably better materials; but with all the best examples of the centuries before him to study, he can hardly even hope to rival the work of the giants of his profession in past times. He cannot, like the scientist, begin where they left off, but must begin on precisely the same level. He must learn from the same open book of nature from which they learned, and his work can only reach the level of his own mental capacity.

"ANCIENT ART UNSURPASSABLE."

The decorative art, of what we are pleased to term our rude Celtic forefathers, produced in the second, third, and fourth centuries of this era, and exemplified in the Ionic crosses and the brooches, sword-hilts, &c., which are to be seen in our museums, are still a wonder to us, and cannot be surpassed either for their purity of art or delicacy of workmanship by our artists of to-day. And so on—I might continue to multiply instances, Homer still stands alone, and few men dream of eclipsing Shakespeare. But while thus endeavouring to show that a man must possess the greatest innate artistic instinct to produce the grandest artistic work, I do not wish you for a moment to think that I depreciate study and effort.

The most powerful faculties must be trained, and can only be fully developed by studying closely the best work that has gone before, and by earnest and constant application; but what I say is this, that a man can only appreciate or produce artistic work to the extent of his own trained artistic instinct. In photographic art the same reasoning holds good. The development of processes may give the exponent of the art fuller and more varied means of expression, but unless he feels some beauty to express no amount of scientific training or knowledge will enable him to make a work of art.

"PHOTOGRAPHY REVOLUTIONISED IN THE LAST TEN YEARS."

During the last decade photography has been almost revolutionised by the introduction of the extremely sensitive gelatine dry plate. The effect of this has been twofold. It has attracted thousands of—may I call them—workers, who fancy that by purchasing an outfit, pulling a string, and pressing a button, and carrying through several simple chemical operations, they will become photographers and produce pictures. They had no intention of taking any great trouble with the matter, nor do they; but in a careless haphazard style they produce multitudes of prints which they show to their friends with the apology that they are only amateurs, and have not much time to spare, &c. The ease with which vast quantities of this careless work can be turned out has doubtless done much to degrade photography, and especially snap-shot photography, in the eyes of the public, but, on the other hand, the introduction of these extremely sensitive dry plates has put a new and as yet a comparatively unknown power in the possession of capable men, especially in landscape work. I say especially in landscape work, because there are examples of portraiture done many years ago by the older processes which have never been surpassed. In the wet collodion process and in the still older calotype process, which required an exposure of several minutes in strong sunlight, there was sufficient resource to enable exceptionally clever men to produce portraits which for surface likeness and portrayal of character might almost be pronounced perfect. The strong lighting of the direct sunshine seems to show more of the real man than the softly-lighted portrait of his skin which is now so much in favour. I believe it is quite possible in photography to produce the ideal portrait which Tennyson so beautifully describes:—

> "As when a painter, poring on a face,
> Divinely thro' all hindrance finds the man
> Behind it, and so paints him that his face,
> The shape and colour of a mind and life,
> Lives for his children, ever at its best
> And fullest."

In some respects it is a pity that the old calotype method has gone entirely out of use, for it certainly possessed some qualities which belong to no other process. By its means it was possible to obtain a strength and breadth in the shadows, combined with an exquisite softness in the semi-tones and high-lights, which cannot be equalled, as far as I know, by any of the processes in use to-day. The process certainly had some strong points, and these were fully taken advantage of by a fellow countryman of ours, D. O. Hill, R.S.A., who, during the years 1843 to 1845, produced a series of hundreds of portraits, which artists, from Sir Frederick Leighton downwards, declare to be among the finest specimens of photographic work. I have here two volumes of these portraits, which I am proud to possess, and which have been shown to you before; but, as I can look over them with fresh pleasure and benefit every week, I make no apology for showing them to you again. These portraits bear the true stamp of the power of the worker, that of his own individuality. As experts can certify the unsigned works of the masters of painting, so these can be recognised as the product of one mind.

This is only one example. We have had other great photographers whose comparative merits it is not now my object to discuss. Mrs. Cameron, for instance, of whose portraits of Tennyson we are at present hearing a great deal, and who lived and worked in the days of wet collodion, did splendid work, which also bears her own personal imprint stamped in the picture, whether it be on the mount or not.

(To be continued.)

CORRESPONDENCE.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

Sir,—I shall be much obliged to you if you will allow me space to inform the members of this Society that the figures opposite the names of Mr. Traill Taylor and Professor J. M. Thomson, in the table at page 90 of our *Journal* have been accidentally reversed, and that Mr. Traill Taylor should have had six instead of two attendances credited to him.

I would also remind our members that nominations for the new officers and Council should be sent in without delay, the 24th of this month being the last day upon which they can be received.

7th January, 1893. Chapman Jones, *Hon. Secretary.*

MEDIOCRITY.

Sir,—I have read Mr. Robinson's article on "Honours and Rewards," in your last, with a good deal of interest, but cannot say that I go all the way with him. We should be grateful to the writer for continually stimulating us to better work, and it is good we should all aspire to the highest: but he seems to forget—as an amiable enthusiast with his soul in his work would do—that we are not all of the material out of which great artists are made. He wants us all to produce great pictures, and does not appear to recognise the extreme rarity of original genius among photographers, the scarcity of pictorial talent, and the wide spread of mediocrity.

It is time somebody said a word on behalf of mediocrity. I should really like to know what would become of our exhibitions if it were not for the padding? It is admitted that the most artistic exhibition ever held, that of the Camera Club last October, small as it was, would have been the better for weeding, and few would be hardy enough to deny that the Pall Mall show would have been a howling wilderness had it not been for the class to which I belong, and in whose behalf I am trying to say a good word. Being so useful to exhibitions why should we be deprived of medals, even if a few of us cannot keep our heads level under success and fancy ourselves at the top because we sometimes get awards equal to the best? I have myself, thanks to the class system, been fortunate at several provincial exhibitions, but I can assure you, Sir, I have felt very humble indeed—but perhaps that is a matter of temperament.

What, I ask, would become of photography if it were not for mediocrity? Why there would not be a score of photographers left to carry on the art!

How is it, it may be asked, that so few of us get beyond the chrysalis stage? There are a few men, of course, who begin by devoting themselves to photography as a science, and never want to do more than know how to do and the why and wherefore; to these men we should all be grateful, for they often supply us with knowledge that smaller men can easily appropriate for their own; but, I take it, that most of us begin the art with the sole intention of making pictures, and soon find that our materials are among the most intractable of artistic means, and that picture-making in any material is not so easy as it seems. That is why so many of us turn away from art and console ourselves with science as a much easier pursuit. It supplies something to do, and can be done in the dark without shocking the eye like a bad picture.

We find our level slowly, but very surely. This is something like the process. We see good pictures and are fired with a desire to imitate them. We read the books and find how easy it all is. We perfect ourselves in our manipulation, we learn where to place the balancing spot and the centre of interest, we buy some rough paper, and then find, alas! that we have not an idea in our heads. We also find that great compositions are not adapted to our art. Then we try landscapes with figures, and find that what appears the easiest thing in the world is the most difficult, and decide that photography was never meant to do two things at once, and take our landscapes without figures, yet, somehow, do not feel very pleased with them. Then for consolation we take to a study of the developers, and the only plates we expose are for the purpose of making comparative trials, and we quickly become full-blown scientists.

I conclude by maintaining that if you abolish mediocrity you will destroy the art. Mediocrity is the staple condition, and necessarily must be always with us. A. Dufaure.

REVIEWS.

Chicago Exhibition. Handbook of Regulations and General Information. (*London: Clowes & Sons.*)

This useful handbook, now in its fourth edition, gives all necessary information to the intending voyager to the World's Fair, and contains a chapter devoted to the Photographic Department, which will be of interest to those of our readers who intend sending any of their works to the great show.

La Photographie Médicale. Par Albert Londe. (*Paris: Gauthier-Villars et fils.*)

Occasional papers have been read before the English photographic societies pointing out the services which the camera can render to physiological and medical science, more particularly in conjunction with the microscope. In the book before us the possible applications of photography in this connection are grouped together, and the result is a book which is both useful and interesting. It contains seven chapters, three of which, comprising nearly half the volume, might have been omitted, for they deal simply with general photography, the use of apparatus, and so forth; such information, in short, as is furnished by any ordinary handbook of the art. It is in Chapter III. that we first find the subject-matter touched upon which is indicated in the title of the work, and this section of the volume is devoted to photographs (of invalids) taken during life, and is fully illustrated. First, peculiarities of the head and face under various nervous disorders, many of the pictures being of the saddest description. Next in order come deformities of the hands and feet, and this leads up to the use of the instantaneous shutter in procuring series of photographs of hypnotised and hysterical patients, with a view to study the movements and contortions which such unfortunates often exhibit. One series of pictures is extremely interesting, showing, as it does, the attitudes assumed by a hypnotised patient under different forms of excitation. With the light falling on the face screened by green glass, the attitude is that of despair. Blue glass seems to excite the patient to prayer; the sound of a bell, the smell of chloroform, camphor, &c., leading to various emotions. Another chapter deals with post-mortem photography, and here is introduced the microscope, and the volume assumes the position of a work on photo-micrography. A final chapter on the work of the camera as an aid to forensic medicine is all too short, and makes no mention of the important work in this direction which has been achieved by Dr. Jeserich, of Berlin. Three pictures in this concluding section of the work are of such a ghastly description that they might well have been omitted without any great loss. They are of the kind which are often shown in the vestibule of the Paris Morgue, but are certainly out of place as book illustrations.

The Microscope: its Construction and Management. By Dr. Henri Van Henrck. English Edition. Translated by W. E. Baxter, F.R.M.S., F.G.S.

This is a handsome volume, containing much valuable matter, with upwards of two hundred and fifty illustrations. As the translator points out in his preface, such a book cannot fail to be of interest to all who devote serious attention to microscopic work, as a means of comparing the Continental views and modes of thought with those of their own and other countries. After an introduction dealing with elementary optics, Abbe's theory of microscopic vision is discussed, and experiments on its application are detailed. This section is followed by a good description of the various parts of a microscope, and we note that the chief English makers receive due credit for different types of instruments, and the many improvements which they have introduced. (By the way, some of the full-page illustrations in this part of the work are rougher than they ought to be, and give the idea that they have been printed from stereotype blocks rather than from electros.) An important place in the book is given to the subject of Photo-Micrography; and here again the labours of such well-known English workers as Dr. Maddox and Mr. Pringle are fully recognised, the apparatus by which the latter gentleman has obtained such splendid results in his photographs of bacteria being well illustrated. The book covers a wide field, and possesses a very valuable feature in a copious index. It is a work which will be welcomed by microscopists as a useful addition to their literature.

* * *

Mr. William Tylar has issued a circular to the effect that, in consequence of a great increase in his home and foreign business, he has been compelled to remove into more commodious premises, which are situated at 41, High Street, Aston, Birmingham.

Chicago Exhibition. — The following sixty-eight corporations have promised to lend, for the decoration of the British Section at Chicago, banners bearing the arms of the municipality. Many of the banners have been made specially for the purpose: London, Edinburgh, Dublin, Aberdeen, Ayr, Banbury, Barrow-in-Furness, Bath, Bedford, Birmingham, Bournemouth, Brighton, Belfast, Cardiff, Cambridge, Canterbury, Chichester, Colchester, Croydon, Coventry, Darlington, Dartmouth, Derby, Devonport, Dewsbury, Dumfries, Exeter, Glasgow, Gloucester, Gravesend, Greenock, Guildford, Halifax, Huddersfield, Hull, Ipswich, Kidderminster, Kilmarnock, Lancaster, Leamington, Leeds, Leith, Lincoln, Londonderry, Manchester, Newcastle-on-Tyne, Nottingham, Oswestry, Oxford, Paisley, Peterborough, Plymouth, Portsmouth, St. Helens, Sheffield, Shrewsbury, Southampton, Stamford, Stockport, Swansea, Walsall, West Ham, West Hartlepool, Wigan, Wisbeach, Wolverhampton, Worcester, York.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

January 5th.—Mr. A. Haddon in the Chair.

Mr H. Snowden Ward showed some photographs sent by Mr. Hanna, of Auckland, New Zealand, who desired an expression of opinion on them. They were portraits of boudoir size, printed apparently upon matt-surface silver paper and toned with sulphocyanide. They were considered to be of a high standard and to rank amongst the first-class in portraiture.

Mr. R. P. Drage called attention to some observations on spirit photography by the Rev. Mr. Haweis. It was decided to ask Mr. Haweis to request the possessor of the photographs showing spirit faces to send them to the Society for consideration.

Mr. A. Mackie observed that at a late meeting a question had been asked as to how to remove the deposit of silver from a developed plate. He would advise the use of bichromate of potash acidified with sulphuric acid.

Mr. Woodbury showed some examples of printed-out lantern slides and opal plates as prepared by the Paget Plate Company, and toned some slides in the two ways recommended by the makers. He also showed a printing frame made expressly for opal printing.

Mr. A. Cowan then showed the method for measuring the speed of plates by Hurter & Driffield's system. The first difficulty was to obtain a standard light. The standard candle was what was used, but it could not be depended upon to give the same amount of light at different times. He, therefore, always used (at the same exposure as that of the plate to be tested) a plate from one batch put aside for that purpose, and compared the indicated rapidity with that of this standard plate. He showed an exposure frame which took in eight strips of plates, and was arranged so that, by shifting a peg, each step on the plate received double the exposure of the step adjoining. The developed strip was examined in the Hurter & Driffield apparatus until three or more steps were found to have a regular rate of progression as regards intensity. The numbers corresponding to these intensities were then marked off on a diagram, and a line through them, produced to meet a base line, indicated the inertia of the plate, from which its speed was reckoned. He had, after extended experience, found his results invariably close to those given by the camera, and he thought the system a great improvement. He used as a standard developer for these experiments a solution containing 1 grain of pyro, 12 grains of sodium sulphite, 4 grains of anhydrous carbonate of soda, and ½ a grain of potass. bromide to each ounce. He developed at a temperature of 70° for a period of 7½ minutes.

Mr. T. Cadett also spoke highly of the method, and thought that it was a great advance to be able to disregard the faintest numbers shown on a plate, and take only into consideration those which indicated a useful sensitiveness. He also considered it a great step to have pointed out that in the various densities of the plate the light transmitted decreased, not directly as the density, but as the numbers corresponding to the logarithms of the numbers representing the densities.

Mr. W. E. Debenham, while recognising the completeness of the Hurter & Driffield system for finding out the usefully sensitive part of the range of definition of the plate, pointed out that it had long been known that the faintest numbers visible on a plate exposed to the Warnerke screen did not represent the camera sensitiveness of the plate. About ten years ago he had published that, by certain means, a plate might be made to give a reading on the sensitometer representing as much as sixteen times its real sensitiveness, but in this case the faint numbers were all very weak and very much alike. He had, therefore, suggested that, instead of taking the faintest reading, the square should be taken where the numbers began to increase perceptibly in density, and Mr. Warnerke assented to this suggestion. As to the use of the word logarithm, he thought the fact that arithmetical increase of densities had corresponded with geometrical decrease of the light transmitted, had been recognised long before Messrs. Hurter & Driffield's paper, and that was the same thing as logarithmic progression, even if the word was not used.

The CHAIRMAN suggested that the standard candle should be weighed before and after exposure, so as to more completely standardise the light, and concluded by thanking Messrs. Woodbury, Cowan, and Cadett for their demonstrations.

ROCHESTER NATURALISTS' CLUB (PHOTOGRAPHIC SECTION).

THE fortnightly meeting was held on Tuesday, the 3rd inst., when some prints and slides (peak and dale), kindly lent by the Editor of the *Amateur Photographer*, were exhibited. It was regretted that time did not allow the members to examine the quantity of excellent prints so minutely as they would have wished to do. Both the prints and slides were highly appreciated by all present.

ROTHERHAM PHOTOGRAPHIC SOCIETY.

Monthly Meeting, Tuesday, January 6th.—Dr. BALDWIN (President) in the Chair.

GOOD attendance of members. Several frost views were shown, as well as Hurter & Driffield's actinograph. The annual exhibition on the 7th and 8th February was referred to, the HON. SEC. announcing that Lady Abreda Fitzwilliam had consented to open the proceedings. The exhibition, although non-competitive in its character, promised to be most interesting, and photographically successful. An appropriate paper on "Preparing for the Exhibition" was afterwards given by Mr. E. I. HUBBARD, Vice-President.

GLASGOW PHOTOGRAPHIC ASSOCIATION.

THE usual monthly meeting was held at 207, Bath Street, on Wednesday evening, November 15th, and, while the attendance was not large, the audience was an appreciative one, and the meeting passed off in the felicitous manner for which all this Society's meetings are famed.

After the opening preliminaries, such as minutes, &c., had been gone through, the SECRETARY proceeded to read the report of last session, and the TREASURER thereafter gave in his annual statement, which showed a good balance to carry forward, both these reports having been considered very satifactory.

The PRESIDENT (Mr. William Lang, F.C.S.) gave his presidential address, which, though short, travelled over the general items of interest which had been brought before the photographic public during the year, and also gave promise of an interesting session to come, as he had secured several leading men to give papers. However, as this paper will, no doubt, be published in your columns, further notice need not be made here of it, although, perhaps, someone can say why several papers read lately have not appeared.

The PRESIDENT having finished his paper, he proceeded to read that of Dr. Paul Jeserich's, on "Photography and its Aid in the Detection of Crime," the first part of which afforded considerable amusement to the meeting, through the mixing of the slides with which it was accompanied, and the difficulty the reader had in making out the wording in the dim light of the lantern lamp, the repetitions of several phrases being exceedingly comical.

The business of the evening, however, was one which did not appear on the agenda, and, being unexpected, proved really interesting.

Mr. J. STUART brought some of the new series of lenses, manufactured by Zeiss, of Jena, which he had just received, and gave explanations of their qualities, illustrating the same by several negatives which he had taken with them. One of these lenses, Series I., was a quarter-plate, working at *f*/4, and the marvellous nature of its work was well seen in a full-length portrait taken on a half-plate, the lens covering fully to the edges, and the picture, considering the strain put upon the lens, being wonderfully sharp. A cabinet head, also taken with this lens, bore out all that has been said of the full-length portrait. Mr. Stuart went into, and described the various lenses made by Zeiss, giving to all which he had tried unqualified praise.

The meeting having awarded votes of thanks to the various speakers, and it being by this time considerably past the usual hour of closing, several interesting matters had to be held over.

BRECHIN PHOTOGRAPHIC ASSOCIATION.

FOR the past year this Association has been engaged preparing slides to illustrate linen manufacture. These are now completed, and on Wednesday evening, December 14th, Mr. D. H. SAUNDERS, Dundee, gave a lecture, entitled "Linen and its Production," in the City Hall. The lecture was illustrated by seventy slides prepared by the members of the Association, and was listened to with great attention by the large audience of nearly 1,000 persons. The lecturer was thoroughly at home in his subject, and slides of the processes of bygone days, such as the spinning and Pirie wheels, hand-looms, &c., gave him an opportunity of referring to the past history of linen manufacture in Scotland, with all its romantic incidents, of which he was not slow to avail himself. Suitable songs by Miss Johnston and Mr. Duncan were sung at intervals and proved most acceptable. The slides were considered to be most admirable illustrations of the processes, and the positions of the people at work very natural.

A collection was made at the door which will be sufficient to meet all the expenses of the lecture. The usual compliments to the lecturer, &c., closed a most successful meeting.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of this Society was held on Wednesday evening, November 9th, the President, Mr. JOSEPH H. BURROUGHS, in the chair. It was announced that the President had appointed a committee to conduct the Sixth Annual Photographic Exhibition under agreement with the Society of Amateur Photographers of New York and the Boston Camera Club. The Exhibition will be held April 17th to 29th, 1893, in the Galleries of the Pennsylvania Academy of Fine Arts, and every effort will be made to make it the most interesting and successful of the series yet held. The resolution offered at the last stated meeting to amend the bye-laws so as to make a change in the meeting night, was discussed at considerable length, and finally, on the motion of Mr. COATES, was laid on the table.

A number of photographic novelties were shown by Mr. MORRIS EARLE, among which were celluloid trays of special construction, and made in various colours: a transparent tray with a well at one end to hold the developer when tray was raised to examine the negative through the bottom. He also showed and described the Frena magazine hand-camera, made by Messrs. R. & J. Beck, of London. Dr. MITCHELL showed negatives made under similar conditions, with the Ross concentric lens and Ross portable lens, which afforded an opportunity for studying the comparative advantages of the two lenses for different classes of work. An interesting collection of lantern slides was shown and described by Mr. JOHN C. BROWNE, illustrating a recent trip made by him to Alaska.

CONVERSAZIONE OF THE RICHMOND CAMERA CLUB.

A VERY pleasant evening was spent in the Richmond Theatre Royal, on Monday last, by the guests who had assembled by invitation of the flourishing Club, which has for its president, Mr. Cembrano, jun., and for its secretary, Mr. Ennis, both most active men in their respective spheres.

The programme consisted of selections of music interspersed by lantern slide exhibitions, the sheet being hung at one corner of the stage, while the optical lantern shed its rays from a distant gallery. The slides included contributions by Messrs. Purcell, Thomson, Chancellor, Alabaster, Ramsay, Harris, Barron, Ardaseer, Neville, Gibson, Davis, Perry, Lowry, Bickerton, Hunter, Hilditch, Williams, and Cembrano, and appeared to give much delight to the assembled visitors.

There was also a small but select collection of pictures in frames which bore witness, like the lantern slides, to the really good work of which this suburban Club is capable. We must congratulate the members upon the signal success of this very pleasant conversazione.

GUM ARABIC.—In consequence of the scarcity of gum Arabic, owing to the disturbances in inner Africa, other substances are introduced from Australia, South America, &c., as substitutes; but none of them is equal to the genuine gum. A. Jacksch, in a paper on this subject, states that inferior materials mixed with gum Gheziri are coming into Germany in large quantities, and being sold as "gum in granulo," and that many of the best firms have been deceived. This cannot be detected by simply dissolving the substance, for the fine gelatinous particles are suspended in solution and remain invisible; but the adulteration can easily be detected as follows:—The suspected sample is mixed with ten times its weight of hot water, and then allowed to stand for three or four hours, with occasional stirring. The insoluble matter will settle down, and then half of the liquid should be poured off, and the same quantity of cold water added. It is then stirred, and again set to stand, and this repeated twice.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

AMAZON.—You have no right to copy the illustrations from any modern work without permission, even if you only intend to use the pictures as lantern-slides in your private capacity. The publishers of the work in question would not be likely to withhold their consent under certain conditions.

B. CELLINI.—The difference in general appearance and texture of the two photographs is, we believe, due to the circumstance that the larger of the two has been copied from the original marble, while the other one has been photographed from a plaster cast.

A. J.—The picture in question was hung both at Pall Mall and at the Camera Club Exhibition, which was opened later.

PHOTOMER.—Assuming your measurements to be correct, the result will give a value of 230 candles for your blow-through jet. This we should think would be a fair estimate for that type of jet, although we have met with some which give a higher figure, and with very many which do not approach it. The form of jet in which the O and H nozzles are quite separate is certainly the easiest to manipulate, but is the most inefficient of any which you can employ.

C. P.—The experiment was performed by the aid of two lamps or regulators—one behind the condensing lens forming the lantern illuminant, and the other in front, so that the image of its carbons was thrown on the distant screen. The carbons of the latter were made to approach one another, and at the moment of meeting the current was switched from the back lamp to the front one.

G. A. K.—We are sorry that your communication came to us too late for insertion in this week's issue. We are writing to you by post.

A. B. ONLY.—The generic name for all these processes is Meisenbach, for Meisenbach appears to have been the first to use a lined screen for breaking up the half-tones of the photograph. We must refer you for the rest to the patent specification.

MATHER, R.—We should advise you to search the back vols. of the *Illustrated London News* published in the years to which you refer.

M. H.—An illustrated article on the subject suggested is already arranged for, and will shortly appear.

PLATEMAKER.—In drying plates, the desideratum is not so much a supply of warm air—which, if too warm, would speedily cause the emulsions to melt and run—as a copious amount of *dry* air in motion, free from dust. The arrangement which you propose using would not meet these requirements.

RAINBOW.—A fluid prism may be made in various ways. 1. A square bottle may have two of its faces ground away to the requisite angle, and the sides filled in with plates of glass attached by marine glue. 2. A piece of hard wood may be bored, cut to the prism form, and filled in with glass windows in the same way. On the whole, it is better to buy a prism ready-made, for carbon bisulphide, with which it is charged, is neither a safe nor pleasant thing to trifle with.

PATENT OFFICE LIBRARY

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1794. JANUARY 20, 1893.

NOTES.

THE Annual Report of the Commissioner of Patents for the United States for the year 1891 has just been published. It is a bulky volume of nearly 800 pages, and contains an alphabetical list of patentees, followed by an alphabetical list of patents granted. We find under "Photography" that there are eighty-seven entries. These include patent specifications relating to cameras (17), lenses (2), roll-holders (2), the manufacture of films (3), printing in colours (1), and photographic coin-operated apparatus (3), the rest of the patents taken out being of a miscellaneous character.

AN anecdote, which forms an interesting contribution to the history of photo-grammetry, is told by Dr. Stolze, in a recent number of *Photographisches Nachrichten*. "In the summer of 1862," he writes, "I was travelling by diligence to Elgersburg, and soon got into conversation with my only fellow-passenger, who turned out to be Meydenbauer, the architect, whose name has since become so closely connected with the application of photography to surveying. A set of stereoscopic pictures which I had with me turned our conversation in the direction of photography, in the practice of which I was at that time but a tyro. Besides telling me of the work which he had done in different branches of photography, Meydenbauer informed me that he had employed it in the measurement of buildings, and he showed that necessity had in this case at least been the mother of invention.

"This was his story:—During the restoration of Wetzlar Cathedral, Meydenbauer on one occasion, in order to get correct measurements, was compelled to stand on a narrow window-sill high above the ground, hanging on, so to speak, by his eyelids. Multitudes of swallows had their nests round about, and these birds darting rapidly hither and thither close to the architect, added to his difficulties, and it required an exercise of all his power of will to retain his perilous position. When he had returned safely from his climb he determined to discover some means of measuring high buildings which did not involve such danger to human life, and in due time he succeeded in finding what he wanted through the medium of photography.

"BY means of specially-constructed instruments the building to be measured is photographed from two different points of view, and the relative distance between those points is ascertained. From the two photographs is then determined the position of all the details shown in each." Dr. Stolze quotes this anecdote in order that its author may be credited with being the first to think out an important application of photography.

IT is stated by a contemporary that there are persons smitten with the collecting mania who devote their energies to the accumulation of soldiers' medals; and soldiers, we are told, are not so loth to part with these decorations as might be thought, although very often they will not do so except from dire necessity. Even the Victoria Cross is sometimes in the market, and one collector is said to possess three examples of that coveted prize. Why does not some genius arise and become a collector of photographic medals? He would find no difficulty in quickly getting together an immense and varied assortment of them.

WE are requested to state that a free demonstration of the use of amidol will be given at 215, Shaftesbury Avenue, the office of the *Hand Camera and Lantern*

Review, on the 31st instant, by Mr. L. E. Morgan, on behalf of Messrs. Fuerst Brothers, the London agents for that excellent developer. Visitors are invited to take with them exposed plates for development.

THE annual series of science lectures at Dewsbury (Yorkshire) was opened last week, with Mr. T. C. Hepworth's lecture on "Curiosities of Photography." On the 7th proximo Dr. Dallinger will discourse about "Spiders, their Work and their Wisdom," and on the 21st of the same month, Sir Robert Ball will give "An Astronomer's Thoughts about Krakatoa." These science lectures are given in the Industrial Hall, Dewsbury, and attract audiences of between two and three thousand persons.

THE *Photographer* publishes the following formula for an ink for writing on glass, for the use of lantern slide makers :—

Place in a vessel of warm water a bottle containing

Bleached shellac	10 parts
Venetian turpentine	5 „
Oil of turpentine	15 „

And when entirely dissolved add five parts of lampblack. One is inclined to ask whether a little Bates' black, thinned with turpentine, would not answer the purpose quite as well, with half the trouble?

IT is said that certain hand-camera men have been known to hide cigars in their button-pressing boxes, in order to deceive the Customs officers. If so, we can only trust that they were caught, and trebly fined, as they deserved to be, for thus bringing discredit upon photography.

THE centrifugal machine which has been found so useful in separating solid particles from liquids, as in the case of sugar, cream, gelatine emulsion, &c., has been employed by M. Lezé, according to *Comptes Rendus*, in isolating micro-organisms. By submitting vessels containing fermentable liquids and organisms to rapid rotary movement, this experimentalist has succeeded in separating a muddy deposit which, under the microscope, is found to consist of a heap of living organisms.

BY the way, here is a story which has not hitherto been published, and of which we can vouch for the truth. An old lady of our acquaintance one day said to her grocer, "What is this *centrifugal* sugar which I see advertised?" He answered, "Well, I don't quite know, ma'am, but I take it to be one of them West Ingy Islands." School Boards kindly note.

THE doings of the alleged bogus portrait company, now being investigated at Folkestone in connection with a charge of defrauding various persons of sums of money, present no novelty, as we have on several occasions called attention to the system. What, however, is surprising is the extent to which the public responded to the specious advertisements of the "company." It was stated by the manager of a local banking company that the total sum deposited by the defendants during two and a half years amounted to £17,787, over £5,000 being banked in one half year. When portrait photographers throughout the country are bitterly complaining of the dearth of business it must be particularly galling to them to find that unscrupulous persons are able to monopolise so large a share of the available cash which the public have to spend on portraits.

OF course it may be said that people will always part with their money when they think they are getting something for next to nothing; but, apart from the weakness of human nature, the fact that so large a sum was obtained for photographic portraiture argues that the desire for seeing their counterfeit presentments is not so dead as some would have us believe. The point is, how are photographers to attract the public and awaken that interest in photography which once amounted to a positive passion? We must confess that it is easier to ask the question than it is to find an answer.

WITH great sorrow we have received the following announcement :—

DEATH OF MR. WILLIAM BEDFORD.

DEAR SIR,—I deeply grieve to inform you of the death—from typhoid fever—of Mr. William Bedford, which occurred this morning, at his residence, 326, Camden Road, after a very short illness.

By the death of Mr. William Bedford, our profession is deprived of one of its most brilliant ornaments, one who, from his youth, was always an ardent and extremely conscientious worker, and who, with ripened experience, became one of its most successful exponents.

The loss of Mr. William Bedford will be keenly felt at the societies and clubs of which he was a member, where he was always popular, and at which his opinions and advice on all matters connected with photography were deservedly held in the highest esteem.

For those who, with myself, are daily engaged at Camden Road, I cannot describe the grief we feel at the early death of Mr. William Bedford, whom we have known so long, and who, since his accession to his father's business, has ever been a most kind, courteous, and indulgent employer.

Yours truly,
ROBERT HAYWARD.
Eastern Road, East Finchley, January 13th, 1893.

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A DEVICE TO TAKE THE PLACE OF THE CAMERA LUCIDA IN MICROGRAPHY.

BY HENRY G. PIFFARD, M.D.

THE art of micrography, or the reproduction on paper of images of minute objects seen through the microscope, may be practised in various ways, of which the three following are the principal :—

1.—The observer studies the object on the slide, and when he thinks he has the outlines and details, or a portion of them sufficiently impressed on his mind, withdraws his eyes from the tube, and commits the mental picture to paper, using, of course, both eyes in directing the movements of his pencil. Success with this presupposes a retentive memory and considerable skill as a draughtsman.

2.—The observer, looking down the tube in the usual way with one eye—for convenience, the left—is, after a little practice, enabled, by a sort of autoprojection, to see an image of the object on a sheet of paper by the side of the microscope. The outlines of this image he traces with the pencil, using the right eye to direct its movements, the observation and the reproduction being simultaneous.

3.—By the aid of a camera lucida, of which there are many different sorts, a reflected or projected image is visible on the paper with the eye that is at the same time occupied in directly observing the magnified image of the object on the stage. In one of the latest forms of camera lucida—the Abbe—this use of half the eye for observing and the other half for recording, is a reasonably convenient method, if the observer's eye is approximately normal ; marked myopia or hypermetropia, and still more pronounced astigmatism, necessitating the use of spectacles, render the use of the camera lucida inconvenient, if not well-nigh impossible.

Some time since it occurred to the writer that the practice of micrography could be greatly simplified by adapting the principles employed in ordinary projection, as used in connection with the optical lantern, the projection microscope, photo-micrography, &c. It was only a question of reflecting the projected image on to a piece of drawing paper fixed in some convenient position. To this end I requested Messrs. Bausch and Lamb to mount a right-angled, reflecting prism with a short tube extending from one of its square faces, this tube to be of such calibre that it could be inserted into the microscope in the place of the eyepiece. From the other square face a similar short tube extends, capable of receiving the ocular and holding it firmly.

When preparing to use this device the object is placed on the stage, and focussed in the usual manner. The microscope is then brought to a horizontal position, the eye-piece is removed, and the prism case put in its place, the ocular being inserted in the short tube provided for its reception. The ocular should point downward. The lamp, or other source of light, should then be disposed in such a way that it properly illuminates the object to be examined, it being expressly understood that no light shall escape toward the observer, except that which first reaches the object. A Beck lamp is conveniently adapted to this purpose. If a piece of drawing paper is placed beneath the ocular, and the room darkened, a brilliant image will be projected on the paper, and its reproduction can be easily accomplished with a maximum of rapidity and a minimum of discomfort. In guiding the pencil the draughtsman uses both eyes, and his spectacles, if needed, and sits in whatever position he finds most comfortable.

With a proper lamp, and careful utilisation of its light, this device gives excellent results with amplifications up to four and five hundred diameters.

If a sensitive photographic plate be substituted for the drawing paper, an exposure of a few seconds will impress an image that may be developed in the usual way.—*New York Medical Journal.*

* * *

EXPOSURE IN LANTERN SLIDE MAKING.

AMONG the many branches of the photographic art which are open to the amateur during the winter season, there are few more fascinating and satisfactory in results than the making of lantern slides. And the fascination is not confined to the worker alone, for, if the subjects are properly selected, and the slides well made, his friends also can participate in his pleasures, as he takes them with him on his holiday tramps in the country, his trip among the mountains, or his yachting cruise along the coast, and his successes and adventures will be more fully appreciated and enjoyed when seen brilliantly magnified upon the screen than when handed around in the form of prints or transparencies.

Although the making of slides has come to be most widely practised, and in the societies is almost universal, it is remarkable how few are the makers of really first-class slides, and the failure appears largely due to a single error in the really simple process of manipulation. It has been the good fortune of the writer to be present, assisting in operating the lantern, at the testing of the slides presented for selection for the American Lantern Slide Interchange for three years, on each of which occasions over a thousand slides were thrown on the screen, and careful personal observation and study of this great number of slides from every part of the country, contributed by over a dozen societies, show quite conclusively that the prevailing error has been in the exposure of the slides.

The principles and practice of the exposure and development of a negative apply only to a limited degree in lantern slide making, as can be readily proved by throwing on the screen a first-class brilliant negative. The result will be surprising in harshness and the violence of the contrasts, and a slide made from the same negative, and possessing the same character and density, will give similar results. Where, then, must we look for a remedy, and one which will give us not only the brilliancy but also the softness so essential to a first-class lantern slide ? The reply is, simply prolonged exposure —an exposure that would be considered ruinous if applied to a negative.

With such an exposure a modification in the system of development, and of the standard of judging the progress of the development is necessary. Fortunately, however, this is simple and readily grasped by anyone capable of making a negative fit for slide work. As to development either pyro or hydroquinone are suitable, or the old faithful iron, while for general work eikonogen is the least satisfactory of all, as the cold colour it produces is unsatisfactory in most of cases. I think the majority of our best workers use hydroquinone, and it is certainly unexcelled for the purpose, as there is less liability of staining from prolonged development than with pyro. Probably the best developer for slides consists of hydroquinone, 100 grains; sulphite of soda, 400 grains; carbonate of potash, 400 grains, and 20 ounces of water. It is well also to have at hand a strong solution of sulphite, say of 10 grains to the dram, which may be used as a preservative in cases of slow development, although it must be borne in mind that an excess of sulphite tends to produce cold tones in the slide. It must also be remembered that hydroquinone ceases to act at about 56 degrees Fahr., and the best results are obtained at about 60 to 65 degrees. With these stock solutions, and unlimited patience, you can produce slides of any quality desired.

Now try a few experiments. Take a negative that you know by experience will give a good slide, and make an exposure about fifty per cent. longer than has been your custom, and pour over it a developer compounded of one ounce of the above solution and three ounces of water. Don't hurry it, but let it take its time. Ten minutes will hardly bring it up to the right density, but it will get there eventually. The result will probably be a soft black tone, but not lacking in brilliancy or clearness, and, if the development has not been forced, there should be no sign of fogginess. Take a second plate, and give it double your customary exposure, and mix your developer, say one part of the stock solution to four of water and a little bromide. The development will now require a much longer time and must be carried further than before, as, after the manner of all over-exposed plates, it will lose considerably in fixing. Don't worry if the image looks thick and muddy, and of a dirty brown tinge, go on with the developer until you can hardly see through it in the half-tones. As long as it does not fog—and it will not if you do not force it—it is all right. Another thing, do not let the appearance of the back of the plate influence your judgement in the least. That sign fails in an over-exposed plate, and I doubt if it is of any value, whatever the exposure. On fixing, this plate will have more or less of a brown tone, which, in many cases, is very effective on the screen.

It is worth the trouble and expense to make other exposures of still greater duration in order to ascertain how far the process can be carried, in each case using a weak developer well restrained, the development being correspondingly prolonged in each case.

By the system here advocated any tone from a rich black to a decided reddish brown may be obtained, together with perfect detail and gradation, and all of the utmost softness and brilliancy, the perfection of the results depending, as in all branches of photographic work, on experience, judgment, and skill.

Some directions for slide making tell us to regulate the exposure to suit the developer. I wish the propounder of this doctrine would tell us how to do it—if he can—as it would settle many doubtful questions and greatly simplify photography generally. Every negative will vary from another in printing density; lighting is a variable quantity; no two emulsions are alike: different lots of chemicals used in compounding developers will vary in quality, and the temperature of the developer is a matter of moment. How all of these elements are to be estimated and co-related in advance is beyond my imagination, not to say comprehension. I can, however, conceive the practical method of modifying your developer according to the indications of the plate as it progresses, and this method is the one followed by some of our best slide makers, men who have made a thorough study of the theory, chemistry, and practice of photography, and their slides are good enough to take prizes in any competition in the world.

In regard to plates, I may say that all of our American brands are good, though differing one from another in sensitiveness, and having individual peculiarities; but I will note the fact, indicated by a somewhat limited observation, that the Cramer plates seem to require a more rapid development than the others to obtain the best results.

I have here treated exclusively of dry plate slides, as being the ones generally used, and I believe it is only a matter of a short time before progress in methods of handling by the average worker, and in theories of judgment of results, will seal the verdict that the dry plate surpasses the wet plate, except, possibly, for special purposes.—*Photo-American.*

PROGRESS IN PHOTOGRAPHY — A CRITICAL INQUIRY.

BY J. C. ANNAN.

(*Concluded from page 28.*)

"METHOD."

THE method is a comparative trifle to the artist: so long as it is capable of adequately expressing his feeling, he is content. But while these slower methods were sufficient for the capable portraitist to express himself more or less fully, the more rapid process has enabled the landscape photographer to work in a manner which was before impossible.

The poetry of the swaying reed, the rippling water, and the rolling cloud, is no longer beyond his effort, while in the snapping of a hand camera at a moving figure, there may be more scope for artistic composition than in the most careful posing, and the possibility of obtaining a perfect result is certainly much greater. The simplicity of the working of modern methods has, as I have already said, attracted an enormous number of disciples, with this good result, that, among the multitude whose work is beneath consideration, there is bound to be a certain proportion of highly capable men, who, but for the simplicity of the manipulation, would never have touched photography at all, and, if the general work shown in our exhibitions is improving, I attribute it partly to the fact that a greater number of capable men are taking part in them, men of artistic feeling and training.

Indeed, the manipulation has now become so simple—thanks to the scientific workers—that, with a few lessons and several weeks' experience, there is no reason why any one, with an artistic knowledge and an adaptive disposition, need not make as perfect pictures as a photographer of many years' standing.

I have seen work done, within four weeks of the purchase of a camera, by a gentleman who before then knew absolutely nothing of the manipulation of photography, which would stand in the front rank of any of our exhibitions, and his success did not greatly surprise me. For twenty years it had been his delight and his profession to study form and composition, and to express them in other forms of art work. The technical manipulation is nothing compared with the knowledge of what goes to make a picture. The true artist will make use of the methods which the scientist has prepared for him, utterly indifferent as to the action of the chemicals; he will use the materials which serve most fully to express his feeling. Art has been defined as "Nature seen through a temperament," and I think there is a great deal of truth in the definition. It is a truth which is very often forgotten, or not sufficiently understood, by scientific minds. The eye to them is simply a lens, the retina an exact and precise mirror. They make no allowance for the quality and temperament of the brain behind the retina. The impression the artist endeavours to reproduce is that which his brain sees on the retina, or so much of it as is of interest to him, and it is this selection of his work which stamps it as his own, and makes it different from that of another. If two artists of equal capacity happen to be attracted by the same piece of landscape, and from exactly the same point make a drawing of it, the results, while of equal merit, will be perfectly different. So it ought to be, to a certain extent, with photographers who study to reproduce their own individual impression. What I mean is very well expressed in the sonnet which appeared on the title-page of the *Germ*, the organ of the Pre-Raphaelite Brotherhood:—

"When whoso merely hath a little thought
Will plainly think the thought that is in him—
Not imagining another's bright or dim,
Not mangling with new words what others taught:
When whoso speaks from having either sought
Or only found—will speak, not just to skim
A shallow surface with words made and trim,
But in that very speech the matter brought.
Be not too keen to cry, 'So this is all!
A thing I might myself have thought as well,
But would not say it, for it was not worth!'
But ask 'Is this truth?' for 'tis still to tell
That, be the theme a point or the whole earth.
Truth is a circle perfect, great or small."

Even in the copying of paintings it is possible for the personal element of the reproducer to appear in his work. I shall quote from an article by Mr. Horace Townsend, on the exhibition of Mr. Hollyer's work at the Dudley Gallery, which seems to me to have been written with considerable insight and judgment.

In addition to the speed and simplicity of the gelatine dry plates, there is another quality which has enabled landscape photography to progress, and that is the more correct rendering of tone in small detached portions of light. In collodion plates every little spot of lighter shade had a tendency to become a sparkling white, and the effect destroyed all feeling of atmosphere and breadth which the picture might otherwise have possessed. Thanks to the gelatine plate, therefore, I consider that artistic landscape photography has progressed much during the last decade, and that the results produced by the best workers of to-day are superior to those of twenty years ago.

I have not taken into account the printing processes in this review of the progress of photography because, while there have been quite a number of delightful methods recently discovered, there has been from comparatively early times a variety of processes suitable for artistic expression, and while there is now a greater number to choose from, they have not to any extent extended the possibility of artistic work. But for the lack of permanency of the plain paper silver printing, nothing could be finer, while carbon printing, which must now be considered an old process, is capable of such a variety of treatment that almost any result whatever may be produced by it.

The great matter, as I have already said, is to know how to use the methods when we have them.

Few men attain distinction in more than one department of work, and it will be generally admitted that the scientific capacity and the artistic temperament are seldom found in the same individual to any extent. One scientific man of considerable eminence is reported to have said that photography would be a delightful pursuit if it were not for the pictures, and I have heard several camerists say a fervid Amen to the opinion. They are wise men who can analyse themselves to this extent; they would be paragons if they took it to heart and refrained from sending their pictorial results to exhibitions. Their sphere of work, a most important one, is to perfect the materials, that others need not trouble themselves about the matter.

It seems evident, then, that for a photographer whose aim is to make pictures, the training should be artistic, not chemical. Let him study the works of the accepted masters in regard to tone and composition, balance of light and shade, and execution. Let him study to discover wherein lies the beauty of these pictures, and then he will see nature with fuller eyes, and it will be his aim to reproduce the new beauties disclosed to him, and not merely to obtain a permanent image of the reflection on a soulless mirror. "Faultily faultless, icily regular, splendidly null, dead perfection, no more." To sum up the result of this investigation I would say that the science of photography has been a constant progression, with the natural result that the increased facilities have enabled men of equal capacity to express themselves more fully, and thus to produce finer work. Scores of men now practise photography for every unit who did so a very few years ago, and there are, consequently, more good workers than formerly, and more good work to show; but the progress has been intermittent, and while the science of photography will continue steadily to progress in the future, the art will rise and fall as the men of more than ordinary power and genius are born and die away.—*Glasgow Photographic Association.*

MULTIPLE COATED OR MULTIPLE FILM PLATES.

BY GREGOR GRANT.

In speaking of multiple film plates it is at present impossible to do so in general, for one is compelled to discuss the merits and demerits of the only plate of the kind at present obtainable, rather than to theorise upon the principles of multiple-coated plates generally.

For the purposes of this paper, and in order to obtain a basis upon which to work, it will be well to start with the two advantages claimed by the makers of the Sandell plates for their production, viz. :—

(1) Absence of halation.

(2) Impossibility of being over-exposed.

Taking these two qualities as being those—or two of those—of an ideal plate, it will be well, before passing on, to determine how the Sandell plates fulfil these conditions, to first consider what attempts have been made to produce a plate that will be entirely free from that bugbear of photography, halation, and, in order to understand these attempts the better, it must first be determined what the cause and effects of halation are. To deal with the latter first—because most easily disposed of—we are all of us but too painfully aware of the visible results of halation: in landscape work, the blurring of the outline of foliage against a bright sky; in interior work, the halo which makes its appearance round a brightly lighted window, often not only obliterating the shafts and bars of the casement, but leaving only an irregular white blotch in that part of our picture where the window should appear.

As to the cause of halation, the first person to lay down any law on this subject was Captain Abney, and the theory first advanced by him has stood the test of time, and come to be universally accepted as the primary cause of what is known as halation. The theory is briefly this—that the rays of light from the brightly lit portion of the picture penetrate the film which supports the sensitive salt, and passing through the glass plate are reflected from its hinder surface back on to the film, and a moment's thought will show that the thicker the sheet of glass the greater will be the aberration of the reflected image from the original, and consequently the greater its interference with it. Though many attempts have been made to overcome or to minimise this reflection, such as grinding one or both surfaces of the glass plate, or backing the plate with either a dead surface or one with the same refractive index as the glass, and of non-actinic colour, only the latter can be said to have been adopted, and neither to be satisfactory, for, although the dead surface will absorb all the light rays which reach it, it obviously cannot affect those which are reflected from the back surface of the glass, and the only advantage that backing has over placing a sheet of black paper behind the plate, is that by it optical contact is obtained.

Some ten years ago, Mr. W. K. Burton made and gave to the photographic world the results of some experiments in which he placed below the sensitive film a non-actinic one of gelatine, containing chromate of silver, which could be fixed out with hypo, leaving a clear printing negative. This was found to be fairly efficient, but so awkward to work as to be impracticable for general use.

I believe that the experiment has been tried of coating a plate with a very rapid but poor emulsion, exposing in the usual way, and then coating the plate with a thick emulsion, which it was supposed would be affected sympathetically by the exposed portions of the under film, and yield on development a good image. Who made the experiment, and what the result was, I do not know and cannot say, but venture to think that the process would prove considerably more awkward to work than that of Mr. Burton.

It having been found that very little light penetrated an ordinary coated gelatine film during a moderate exposure, it was thought that if the film were thickened the chances of halation would be very materially reduced. This theory proved substantially correct, but the thick film presented difficulties and disadvantages. There was the expense of making so thick a film rich, and if it was poor—*i.e.*, if the same amount of silver that would be contained by an ordinary film were spread over the greater thickness—then an insufficient number of particles of the sensitive salt (that is, only those near the surface) would be affected to give a good result. This difficulty, however, has been got over by Mr. Sandell, who hit on the plan of coating the plate twice—a process heretofore considered impossible—first with a slow emulsion and then with a rapid one, his contention being that while the shadows were properly exposed on the upper film the high lights would solarise it, and, penetrating to the lower, correctly expose that, and if the exposure were then increased, the high lights would entirely reverse the top film, converting it into a positive, and the greater the over-exposure the denser the positive would become, counteracting in its effects the fuller exposure of the under film; meanwhile if the shadows were not very dark they would, as they lessened the pluck of the "embryo" image of the upper film, form an under-exposed, and therefore plucky, one on the lower, and the weaker the one became the stronger would become the other, and the two together form a good negative.

Thus, on a correctly exposed plate with heavy contrasts in it (and it is for this kind of view that the Sandell plate is meant), there would be on the upper film shadows with the correct exposure and high lights solarised, and on the film beneath clear unaffected film below the correctly exposed shadows, and correctly exposed film below the solarised high lights; and, in the case of the "pseudo" over-exposed plate, the shadows would be rendered by a negative lacking in contrast above, and one with violent contrasts beneath, and the high lights by a positive above and a dense negative beneath; the combination of the two images, in each case, giving as a result a properly balanced negative of more or less density according to the amount of exposure the plate has received. In all cases, little or no light would go beyond the second layer of gelatine, and, therefore, none could be reflected from the back of the glass and cause halation.

This, then, being the theory of the Sandell plates—the only multiple film plates at present in the market—it now remains to be seen what they will do in practice, and I must be egotistical enough to commence with a description of my own experiments, but only because I am the best acquainted with *them*. They may be interesting to some here, because made by one who knew nothing, and consequently committed every possible error of exposure, *i.e.*, of giving too little, too much, and what proved more fatal than either—singular though it may sound—a mean between the two.

On starting for my holiday this summer, I determined to take a dozen ordinary Sandells with me, just to see what I could do with them. As I only got the plates the very day I started North, I was unable to make a single test exposure before starting, so had only the verbal advice of our accomplished president, Mr. Pringle, to go upon, and this I completely misunderstood, with the result that I went away under the belief that the correct way to treat the plate was to grossly—*i.e.*, many times—over-expose it, so as to reverse the top film, which was afterwards to be got rid of by stripping. As a result of the misunderstanding, I managed to secure nine good negatives out of my dozen plates, and might have had ten, but from losing one through stripping when I ought to have reduced. This, it must be admitted, speaks very well for the plates. As a basis for my exposure I took what I considered a full exposure for a Thomas thickly-coated landscape plate, and multiplied that by ten to make sure of over-exposing.

The first view I took was from a hill-path looking back over the town below towards the mist-covered hills beyond; a bright morning sun shining over my shoulder was clearing the mist from the mountain peaks of the Trossachs, and the whole landscape was yet hazy. I considered that a T.C.L. would have stood half a second at *f* 16, so I gave five seconds. On development the upper film darkened all over at once, and development was continued for about three-quarters of an hour, when the image was distinctly and evenly visible on the back of the plate. I fixed, and then stripped the top film off and found a fully-exposed negative on the lower. The second plate, which was an identically similar, though not the same view, but with only 7½ sec. at *f*/22, I treated likewise, but found the image on the lower film too under-exposed to be any good, but the plate would probably have been saved had I reduced instead of stripping. As there were no great contrasts in either of these views, they were merely a test for length of exposure, and as such I will refer to them later on. As another test for length of exposure, I exposed two plates, a Cyclist and a Sandell, on the same subject—a group of old tombstones lying flat—under precisely the same conditions, giving the latter as many minutes as the former seconds—in each case one-half, or a comparative ratio of 60 to 1. Between the two results you will see there is little to choose; the Sandell is the denser of the two, has more detail in the shadows, but is somewhat stained with the reducer. Three other views had dark foregrounds, a mountain distance, and clouds; in one the sun was in front of the camera, and shining between fir trees on either side of the picture, throwing their trunks into deep shadow; between them was a distant mountain peak, Ben Vhorlich, some eight miles off, and brightly lit clouds—in each case the clouds print well, and in this one the detail in the trunks of the fir trees is not lost. This, I think, shows the plates' capacity for rendering contrasts.

Two other views of the same kind I unfortunately lost through giving an exposure too much for the upper film, yet insufficient to penetrate it—which seems the only thing fatal to a Sandell. Yet I believe that had development been either proceeded with more cautiously or carried further, say, after stripping off the upper film, that a printable negative might have been obtained.

Still two others, which I exposed in a deep glen—one in which I believe a camera had never been before—with exposures that I considered sufficient to penetrate to the lower film, gave fully exposed but good images on the upper, which did not require reduction. All the plates were developed with Thomas's new developer, "Cyclol," which I am told is a mixture of hydroquinone and eikonogen, and, with the exception of the two I lost and the two mentioned as taken in the glen, development was pushed till the image appeared well marked on the back, and reduced to the required density with ferricyanide of potassium and hypo.

I will now pass on to experiments not made by myself, but the results of which I have seen, and with the *modus operandi* of which I am quite familiar. The subject of one, which was conducted in the presence of Mr. Sandell himself, was a drawing-room, facing south—a large window with lace curtains in the centre of the picture, and beyond it a glass passage, and beyond that again the garden landscape, lawn, and trees. It was found that the correct exposure for a Paget plate was two minutes—the Sandell was given twenty minutes; the room was darkly lit, the sun shining brightly outside. In result the Sandell showed a decided superiority over the other, there being complete detail in the interior, no trace of halation round the window, and the landscape without still clear and printable.

Another trial had for its subject one which might be said to have been made to give halation all over—the interior of a vinery, with a blazing sun shining in patches through the openings between the leaves on to bunches of green grapes. Several exposures were made, varying from 2 sec. to 4½ min. Most of the resulting negatives were good, and none showed any trace of halation whatever. (*To be continued.*)

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JANUARY 20, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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Subscriptions are now due for the ensuing year.

The Publishers request that the amount be remitted at once—all Subscriptions being payable in advance.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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ART IN A LANTERN SLIDE.

It would seem that there are many persons who cannot dissociate the lantern and its works from the toy-shop with which it was so intimately connected until about two decades back. For the question has more than once arisen whether a lantern picture can claim to be a thing of art, just as if the only pictures which could be projected by it were those of the highly-coloured kind which are the delight of boyhood before they learn to check unlimited admiration by a smattering knowledge of the laws of pictorial design. Or possibly the notion that a lantern slide cannot have artistic merit was initiated by the author of "Naturalistic Photography," for Dr. Emerson, in that much-discussed volume, tells the student that with lantern slides he (the student) has nothing to do. "A lantern picture," he says, "is an optical illusion, and lantern slides are toys when they do not serve lecture purposes. For lecture purposes they are, of course, invaluable, but they have no place in art," &c. We do not quite see the force of this reasoning. A lantern picture is certainly a means to produce an illusion, but why should that illusion not have artistic qualities? Actors and scene painters combine to produce another kind of illusion, but have we any right to assume on that ground that they have no place in art? But a picture of any kind is, in point of fact, an illusory thing, where pigments or other markings are grouped together under certain harmonic laws to represent forms and ideas. Why should such a representation cease to be of artistic quality because it is produced on a transparent medium which admits of its being magnified? We will endeavour to put the matter in a little clearer light. A water-colour artist paints a picture by applying a certain pigment—sepia, for example—in dilute form to a white surface, so that that surface shall reflect the light in proportion to the thickness of the film of monochrome to the eye of the spectator. No one can possibly deny that by such simple means an artistic result can be achieved. This picture, let us suppose, is afterwards photographed on glass by a process that exactly reproduces the tone of the original, and it is subsequently projected on a lantern screen. Why, in the name of common sense, should that picture, the deposit on which still controls the amount of light which shall be reflected from a white surface, cease to be an artistic production? Or, suppose we take one of Dr. Emerson's own photographs—and we must all admit that he has produced many which are entitled to be called artistic—and that we reproduce it as a lantern slide. Why should that method of reproduction vulgarise it more than any other that we might have adopted?

Luckily, all our photographic experts are not of Dr. Emerson's opinion; indeed, we are inclined to assert that they are directly opposed to him in this matter, for they themselves give testimony against it by constantly allowing their best works to be shown as lantern slides. At the photographic exhibitions at the Crystal Palace—to take an example about which we are able to speak with some authority—our best workers have shown lantern slides, and we may presume that they would not have done so had they any idea that their pictures would suffer artistic eclipse by appearing in that guise. All are aware, too, that Mr. H. P. Robinson, Mr. Sutcliffe, and other leading photographers have allowed their pictures to appear as lantern slides.

But we can oppose to Dr. Emerson's strictures on lantern pictures the opinion of an earnest worker, whose words always bear an authoritative stamp. Mr. Pringle writes:—"Photography, perhaps, reaches its climax of beauty and utility in a good lantern slide shown on a good screen with a good light;" and again, "The optical lantern is valuable both to art and science" ("Processes of Pure Photography," p. 171). It may be said, perhaps, that Mr. Pringle is more identified with the scientific part of photography than with its artistic side, and that, therefore, his opinion in this connection does not carry much weight: but anyone who has had the privilege of seeing what Mr. Pringle can do in the way of picture-making by photography will at once know that he is capable of giving an opinion upon a matter which, to those who have only seen his scientific work, might seem foreign to him. He probably knows a great deal more about the artistic capabilities of the camera than those who are so fond of parading their knowledge of the subject, and who garnish their sentences with the current affectations of the impressionist vocabulary.

But all must agree with Mr. Pringle when he points out that, while a good lantern picture is a thing of beauty, a bad one is a horror. It is possible that Dr. Emerson became prejudiced against this form of pictorial art by reason of the many bad slides which had come under his notice when he wrote his famous book. Certainly, at most lantern exhibitions, the good slides are few while the bad ones are many; and, although there is a distinct general improvement in these pictures since the plate-makers gave amateurs the means of conquering technical difficulties in their production, there are still slides shown in public which, instead of being put on the lantern stage, should be placed under pressure, say, of a cart-wheel.

Although it has nothing whatever to do with the question of the artistic merits of the work, there is a plea which may be put forward here in favour of the lantern form of picture. Those who work with a very small-sized camera necessarily produce pictures which, on account of their insignificant proportions, escape recognition, although they may be full of artistic feeling. Such a picture, projected as a lantern slide, at once arrests attention, and its merits are seen where otherwise they would, perhaps, for ever have remained undiscovered. It is certain that, in such a case, an ordinary enlargement on paper does not give such a brilliant effect as a well-executed and well-shown lantern picture.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.—We are requested to announce that at the next technical meeting, to be held at 50, Great Russell Street, W.C., a demonstration will be given by Mr. W. E. Debenham, on "Photo-Lithography."

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

PHOTOGRAPHING THE ULTRA-VIOLET RAYS — THE KEEPING QUALITIES OF GELATINE NEGATIVES—AMIDOL—METOL AS AN INTENSIFIER FOR COLLODION PLATES—BLUE PROCESS.

PHOTOGRAPHING THE ULTRA-VIOLET RAYS.

THE well-known and eminently important investigations, from a scientific point of view, made by Herr Victor Schumann, in taking photographs of the ultra-violet rays, have resulted in the invention of an ultra-violet sensitive plate, consisting of plain silver haloid—*i.e.*, without the use of any medium, such as collodion or gelatine—with which it is possible to take a photographic view of the spectrum far beyond its visible limits. In a communication directed by Herr Schumann to the Imperial Academy of Sciences, at Vienna, the author points out that the photographic energy of the ultra-violet rays is considerably curtailed if collodion or gelatine plates are used. According to the author, this is caused—firstly, by the impenetrability for these rays of the collodion and gelatine film in which the silver haloid is embedded; and secondly, by the impenetrability of the air, which is to be passed by the rays on their way to the plate. If these two absorbents are removed, the photographic activity is extended far beyond the point which has been taken hitherto as the limit of the photographic energy of the spectrum. It will be easily understood that there is some difficulty in preparing a film of plain silver haloid. Herr Schumann has succeeded, after numerous experiments, in working out such a process, a detailed description of which he has recorded in the form of a sealed letter at the Imperial Photographic Institute of Vienna.

THE KEEPING QUALITIES OF GELATINE NEGATIVES.

With the first number of its new volume, the *Photogr. Archiv* begins to publish the results of a circular which its editor has addressed to all its readers and to the photographic public of Germany generally, with a view to gather from among them information and opinions on the keeping qualities of gelatine negatives. In an introductory note it is stated that great interest has been shown in the matter, and that most of the circulars sent out have been returned with the requested answers. The result is, as we expected, as follows:—"Gelatine negatives are of sufficient durability for all practical purposes, provided they have been thoroughly fixed and washed according to the usual methods." In some cases negatives have been kept for more than fifteen years, and it is stated that they are still perfectly clear and free from stain. Negatives which have been very often used for printing have become a little darker in time. Intensification, especially that with bichloride of mercury and ammonia, seems to have been injurious to the durability of the negatives in most cases. The elimination of the last traces of hyposulphite of soda after fixing has been done, almost exclusively, by thoroughly washing the negatives.

AMIDOL.

The latest arival in the large family of photographic developers, amidol, has led to a controversy between the two German firms by which the substance is manufactured. The Berliner Actiengesellschaft für Anilinfabrication, which has introduced it as "Dr. Andresen's amidol," claims that, in the patents which have been granted to Dr. Andresen, not only the employment of amidophenol and of amidokresol as developers have been protected, but also the employment of the substitution products of these substances, and amidol is said to be one of the latter. On the other hand, the firm of Y. Hauff, of Feuerbach, states that it was the first by which orthoparamidophenol has been prepared in a chemically pure state and introduced as "amidol," together with formulæ which were the outcome of its own researches. Applications for letters patent were made by Mr. Hauff in Germany on February 27th, 1892, and patents bave been granted to him in Austria-Hungary, France, &c. As the Berlin people announce that they intend to go to law in Germany with all who use or sell amidol which has not been purchased from their firm, the result of the controversy will be regarded with close attention.

METOL AS AN INTENSIFIER FOR COLLODION PLATES.

In the *Photo. Correspondenz*, Dr. J. M. Eder comments on a method of intensifying wet or dry collodion plates with metol mixed with silver nitrate and citric acid, which has been recently published. The formula is as follows :—

SOLUTION A.

Metol	15 grammes
Citric acid	10 „
Distilled water	1,000 c.c.

SOLUTION B.

Silver nitrate	10 grammes
Distilled water	100 c.c.

The fixed and well-washed negative is rinsed at first with metol solution A, and then poured over with ten parts of metol solution A mixed with one part of the silver solution B. The intensity of the collodion negatives will, after this treatment, increase rapidly, and no brown stain will make its appearance, as is often the case if pyro-intensification is employed. The metol and silver intensification gives films which in the wet state will appear blue by transmitted light, and brown after drying, which should be taken into account in judging of the density of the negatives. The above-described method answers equally well if used before fixing.

BLUE PROCESS.

The following process for producing cyanotypes on paper is recommended by Herr F. Veress, the well-known photographer of Hungary, in the "Phot-Almanach f. 1893." Two solutions should be prepared :

SOLUTION A.

Iron and ammonia citrate	8 grammes
Ammonium ferrocyanide	2 „
Oxalic acid	1 gramme
Distilled water	120 c.c.

SOLUTION B.

Ferricyanide of potassium	8 grammes
Ammonium ferricyanide	2 „
Distilled water	120 c.c.

The two solutions are mixed and then filtered. Previously moistened glossy baryta paper is floated on the filtered solution for about four minutes, when it is dried at 89° F. The paper is then printed in the usual manner beneath a negative. The prints are washed in soft water, and then placed one by one in a mixture of 100 parts of water and one part of hydrochloric acid. They are allowed to remain in it about five minutes, until the image has become quite pure. Finally the prints are well washed in clean water.

To produce blue prints on canvas and silk the following process is given by the same author :—5 grammes of arrowroot are dissolved in 50 c.c. of water ; 2 grammes of gelatine are dissolved in 50 c.c. of warm water ; 300 c.c. of water, to which has been added 1 gramme of ordinary white sugar, 10 drops of glycerine, and 5 drops of a saturated solution of caustic potash, are boiled, and the arrowroot and gelatine solution added to it by constant stirring. The liquid is then filtered through flannel in a flat dish resting in a warm water bath. The fabric to be sensitised is placed on the liquid and allowed to float for from four to five minutes ; it is then mounted on blotting paper, which is fastened to a drawing board and dried in a warm room. The fabric is sensitised and printed as described above, and it should be used soon, for it quickly loses its sensitiveness. Before fixing, the prints should be placed one by one between sheets of blotting paper, in order to avoid spots. Fixing is done as above described, in water acidulated with hydrochloric acid.

* * *

PHOTOGRAPHY IN AUSTRIA.

BY E. VALENTA.*

ON CERTAIN SECRET PREPARATIONS FOR AMATEUR PHOTOGRAPHERS RECENTLY BROUGHT INTO THE MARKET.—I. HYDROQUINONE READY FOR USE ; II. READY-MIXED RAPID DEVELOPER ; III. DEVELOPER CONTAINING METOL ; IV. FIXING SALT, TONING, AND FIXING CAPSULES.

SAVING trouble plays such a part with many amateur photographers that they regard ready-made developers, developing capsules, and fixing capsules as desirable things, and they buy them.

Formerly it was considered necessary that the directions for use accompanying such articles should, at least, hint at the ingredients used in their composition ; whereas, nowadays such secret things, often supplied with highly euphonious names (and if they are liquids, coloured a nice red or blue), are sold, so that often it is not easy for an expert to know what substances he is dealing with.

It occurred to me that it would be useful for me to examine these preparations somewhat more closely as they came into my hands.

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* From the *Photographische Correspondenz.*

I. *Hydroquinone Developer Ready for Use*, sometimes called simply, without further explanation, "Developer for Amateurs Ready for Use," is at present the most usual ready-mixed developer to be found in the market. Usually it corresponds to Balaguy's formula: 900 water, 75 sodium sulphite, 10 hydroquinone, 150 soda. Often it is coloured red with eosine, to give it an appearance of originality. Rarer in commerce is the concentrated hydroquinone developer, containing, instead of soda, the more soluble potash—viz., 10 hydroquinone, 40 sodium sulphite, 400 water, 80 potash;* it is diluted with 3 parts of water before use.

II. *Ready-mixed Rapid Developer* (eikonogen hydroquinone developer).—This developer, usually sold without any further explanation as to its composition, is recommended for instantaneous pictures, and for films which are usually not at all sensitive, and sells largely in France, Italy, as well as Sweden and Denmark. These developers (I have had pretty many in my hands) generally correspond more or less to the following formula:—

Water	1,500·0	grammes.
Eikonogen	12·5	"
Hydroquinone	7·5	"
Sodium sulphite	150·0	"
Potash	75·0	"

III. *Developer containing Metol.*—Metol is well adapted for the preparation of keeping ready-mixed rapid developers. Recently the trade has introduced some developers corresponding to the following formula:—

Water	1,000	cm.
Sodium sulphite	100	grammes.
Metol	10	"

It is mixed with a solution of soda (10 per cent.) volume for volume. The developer can be prepared in triple concentration, which suits the purposes of dealers. It is also sold mixed with hydroquinone, which mixture is pretty popular, and which can be prepared concentrated.

Every amateur who reads the price lists knows that all these developers are sold in the form of powder or pastilles, and bear the strangest names—*e.g.*, "Graphol," † "Iconophile," "Blitz" (= Lightning).

When sold in powder form, these developers are generally in two packets, one containing sodium carbonate or carbonate of potassium, while the other contains the developing substance mixed with metabisulphite of potassium.

IV. *Fixing Salt, Toning, and Fixing Capsules.*—Although the preparation of acid fixing baths is not attended with any difficulty, yet amateurs prefer buying either a ready-made fixing bath or, at least, fixing salt in packets or capsules, the contents of which, dissolved in a certain quantity of water, furnishes a ready-made acid fixing bath. Many chemical works furnish photographic dealers with a very good quality of such ready-mixed fixing salts, which consist of hypo mixed with 5-10ths per cent. of dry acid sulphite.

The toning and fixing baths so much liked for silver chloride prints are also sold ready mixed; but recently also toning and fixing capsules containing in a solid state the chemical to be dissolved in a given quantity of water. I have examined some of the toning and fixing salts, and found one sample consisted of nitrate of lead, hypo, and chloride of gold, whereas, in another, gold was omitted as being too expensive, and the contents consisted of salts of lead and fixing sodium, which mixture also toned, but, naturally, has a detrimental effect on the keeping properties of the pictures toned and fixed with it.

A NEW ELECTRIC FURNACE.

BY HENRI MOISSAN.

THE discovery of the oxygen blast by Henri Sainte-Claire Deville and Debray rendered great services to chemistry. By means of this apparatus, it has not only been easy to melt and refine platinum and to obtain new alloys, but also to extend and generalise a certain number of questions in mineral chemistry. The temperature which may be reached with this apparatus fed with coal-gas and oxygen is about 2,000°. We know that Deville and Debray found no substance except quicklime to resist this temperature.

Having had occasion, in former researches, to submit various substances to a temperature exceeding 2,000°, I thought of utilising the heat yielded by the electric arc. After some trials I finally adopted the arrangement which I submit to the Academy, the only claim of which is its extreme simplicity.

This new furnace is formed of two bricks of quicklime, carefully cut and placed one above the other. The lower brick has a longitudinal groove which receives the two electrodes, and in the middle is a small cavity which serves as a crucible. This cavity may be more or less deep, and contains a layer, some centimetres in thickness, of the substance upon which the thermic energy of the arc is to act. Or we may also arrange a small crucible of charcoal containing the substance to be ignited; or, for the reduction of oxides and the subsequent fusion of the metals, we use larger crucibles, and a cylindrical aperture made in the upper brick allows of throwing from time to time into the furnace small packets formed of a compressed mixture of oxide and of carbon. The furnace, therefore, receives merely a single arc, and the diameter of the carbons which serve as conductors will, of course, vary with the intensity of the current. After each experiment the ends of the carbons are entirely converted into graphite.

In our first researches we used a small Edison machine driven by a gas engine of four horse-power. Most com-

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* *See* "Eder's Handbuch der Photographie," Vol. VII., p. 301.

† The article brought into the market under that name by Mercier, of Paris, is a mixture of eikonogen and sodium sulphite.

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monly the current traversing the furnace indicated 30 ampères and 55 volts. The temperature reached did not much exceed 2,250°. In a second series of experiments we utilised the force produced by an eight horse-power gas engine. The apparatus for measuring indicated 100 ampères and 45 volts. The temperature reached was about 2,500°. Lastly, thanks to the kindness of M. Violle, we were able to carry out our third series of experiments at the Conservatoire des Arts et Métiers. We had at our disposal a force of fifty horse-power, and the arc obtained under these conditions measured up to 450 ampères and 70 volts. The temperature was about 3,000°. We are bound to address our thanks to M. Tresca, whose kind assistance proved very useful to us in this last series of experiments.

When employing high tension currents it is necessary to take certain precautions, and to insulate the conductors with care. But even with currents of 30 ampères and 50 volts, such as those employed at the outset of these investigations, it is imperative not to expose the face to a prolonged action of the electric light, and always to protect the eyes with spectacles having very deep-coloured glasses. Electric sun-strokes were very frequent at the beginning of these researches; the irritation of the eyes produced by the arc may occasion very painful congestions.

The temperatures obtained in this series of experiments are only given approximately. But M. Violle, not content with furnishing the means to carry out this research, has kindly undertaken the special determination of those different temperatures by procedures which he will lay before the Academy at an early date.

When we became accustomed to the management of this furnace we were able to produce a number of reactions, which we will briefly summarise.

When the temperature is close upon 2,500°, lime, strontia, and magnesia crystallise in a few minutes. If the temperature reaches 3,000°, even the material of the furnace—quicklime—melts and flows like water. At the same temperature, carbon quickly reduces calcium oxide, and the metal is liberated in abundance. It readily combines with the carbons of the electrodes, forming a calcium carbide, liquid at a red heat, and easy to collect. Chromium sesquioxide and magnetic iron oxide melt rapidly at 2,250°. Uranium sesquioxide, if heated by itself, is reduced to the state of black uranous oxide, forming long prisms. Uranium oxide, which cannot be reduced by charcoal at the highest temperatures of our furnaces, is quickly reduced at 3,000°. In ten minutes it is easy to obtain an ingot of 120 grams of uranium.

The oxides of nickel, cobalt, manganese, and chromium are reduced by charcoal at 2,500° in a few moments. This is a fine experiment for a course of lectures, as it does not require more than from ten to fifteen minutes.

This method enables us easily to cause boron and silicon to react upon the metals, and to obtain borides and silicides in very fine crystals. Lastly, it is easy, under the above conditions, to cause this elevated temperature to act upon a number of substances, simple and compound. We are continuing this study, and shall soon communicate our further results to the Academy.—*Comptes Rendus.*

PROCEEDINGS OF SOCIETIES.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

Ordinary Meeting, Tuesday, January 10th.—Mr. T. SEBASTIAN DAVIS, F.C.I., in the Chair.

A NEW member was elected. It was announced that the Lincoln Camera Club had that evening been affiliated.

Messrs. W. Atkinson and T. Samuels were elected auditors Messrs. A. C. Braham, J. D. England, T. E. Freshwater, J. R. Gotz, W. Atkinson, H. A. Lawrance, and Charles Sawyer were elected scrutineers.

In the absence of Mr. John Spiller, his paper on "Amidol and Metol" was read by Miss SPILLER.

Mr. A. R. DRESSER said that in the case of amidol, it was of great importance to avoid over-exposure. He considered it the best of all developers for bromide paper; he had obtained the best results by taking—

Amidol	1 ounce.
Potassium metabisulphite	1 ,,
Water	10 ounces.

For use, he took the above solution	16 drams.
5% solution carbonate of potassium	14 ,,
10% solution bromide of potassium	2½ ,,
Water	20 ounces.

At this strength a black tone is obtained, which dilution of the developer makes greyer.

Mr. G. L. ADDENBROOKE said that there was a certain amount of free sulphurous acid in metabisulphite of potassium, which acted as a restrainer, and rendered the use of this salt preferable to that of the sodium sulphite. A much-restrained developer gave warm tones.

Mr. A. MACKIE asked how free sulphurous acid could act as a restrainer when no development could proceed unless the solution was alkaline.

Mr. T. BOLAS said that in dilute solutions reactions often required a considerable time.

Mr. CHAPMAN JONES read a paper, entitled "A Chemical Study of Mercurial Intensification."

Mr. W. E. DEBENHAM regretted Mr. Jones had not treated of the method with iodide of mercury and Schlippe's salt, which he had found more convenient than any other. He claimed for it a greater increase of density, and the power of stopping the action at any time. Where the iodide caused a deposit in the shadows of the negative, he should consider insufficient washing to be the cause.

Mr. CHAPMAN JONES said he should be glad to follow up Mr. Debenham's suggestion, but he was rather shy of both iodides and sulphides. His objection to the Schlippe's salt and similar methods was that they produced a thorough change in the constitution of the image, and then could not be re-intensified or otherwise treated like the original image.

The HON. SECRETARY, owing to the lateness of the hour, was only able to read a *résumé* of a paper by Colonel Waterhouse on "Guiacol and Allied Phenoloid Compounds as Developers."

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

January 12th.—Mr. J. HAY TAYLOR in the Chair.

MR. P. EVERETT called attention to a table of lens angles, published by Mr. A. Haddon in the *British Journal of Photography Almanack.* He maintained that the rule laid down was inaccurate on two points, as the measure ought to include the corner of the plate, and there would be a difference of angle for the same plate, according to whether the point of sight was central or not. He would direct that the distance be taken between that part of the plate opposite to the optical centre of the lens and that corner of the plate; divide that by the focal length. find the nearest tangent. and read off the corresponding arc. Double that will give the angle which the picture may be said to require.

Mr. A. HADDON explained his view by the help of diagrams on the black-board. He had taken the usual view that the longer side of the picture was made the base of calculation.

Mr. W. E. DEBENHAM thought that any discrepancy of view could be easily explained. and showed by diagrams that, with a given lens and plate. the included angle would differ with the inclination of plate. such as occurred with swing-back cameras.

It was decided to continue the discussion at a future meeting.

Mr. HADDON then read a paper on testing oxygen and, in conjunction with Mr. Grundy, demonstrated the methods described. It appeared from experiments that had been made that of five samples from one manufacturer. the nitrogen present ranged from 15 to 45 per cent. A sample from another house yielded 7 per cent. nitrogen, whilst that in use at Greenwich, made by an ordinary labourer from chlorate of potash. contained less than 1 per cent. impurity. The average of three of the samples represented as impure a mixture as would be obtained by mixing equal parts of common air and a good sample of oxygen.

Mr. SPURGE said that the adoption of a plan of testing would naturally lead people to differentiate, and choose the make which was best. The only difference between the method of testing shown and that which he employed was that he used an extra bulb on Hempel's burette, so that the atmosphere did not come into contact with the pyro solution.

Mr. T. F. FRESHWATER said that in his experience gas from chlorate of potash gave a much better light and went much further than that obtained from air. He had heard from theatrical people that they had had to nearly double their plant when using gas from air. It was a question of price. Chlorate of potash varied considerably in price, and some ogygen-makers had had to spend at least one hundred pounds more in one season than another owing to this difference. He very much preferred oxygen made in a retort from chlorate of potash and put into a bag, but of course the compressed gas in cylinders was convenient.

The CHAIRMAN observed that on the 23rd inst. the Lantern Society was going to demonstrate the quantity of light obtainable from various qualities of gas.

Mr. F. A. BRIDGE was in the habit of using gas from a holder for making enlargements by limelight. On one occasion he used from a bottle instead, and found that his picture was scarcely half exposed.

Mr. T. BOLAS thought that lanternists were indebted to Messrs. Haddon and Grundy. The method they had demonstrated was simple enough for people accustomed to chemical manipulations, but he thought that the unaccustomed would get their results vitiated; but they could always verify by testing ordinary air, which was practically constant in composition.

In acknowledging a vote of thanks, Mr. HADDON said that gas sold as oxygen, by whatever method prepared, ought not to contain more than 5 per cent. of nitrogen, and he thought that anyone using the method shown could tell whether there was about that amount, or whether it came up to something like 45 per cent.

Mr. HUDSON showed his "Kelm" continuous magnesium powder lamp, and during the exhibition of it several cameras were exposed on the members. It was afterwards remarked that the ceiling had become charred, and Mr. DEBENHAM observed that it should be a warning to members not to use a powerful continuous lamp within such a distance, five or six feet, as was allowed overhead in this case.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

ON Wednesday, the 4th inst., at Jubilee House, Hornsey Road, N., the first of a series of technical evenings for beginners was held, the subject being "Development." The subject being treated in a purely elementary manner, the general body of members was not invited to attend. A fair number of gentlemen, among whom were several strangers, availed themselves of the opportunity afforded them. They each brought two exposed and undeveloped plates, and were in their turn taken in hand by Mr. C. Beadle, who was the instructor for the evening. He opened with a brief description of the various developers most generally in use, their advantages and failings, the correct method of compounding them, and of modifying them to suit the different exposures and subject. He then questioned each gentleman as to the exposure given to the plate he had brought, and the general conditions under which it was taken, and advised him as to the best method of developing. He then set him to mix the developer, and stood by while the plate was developed, giving advice during the process. The meeting was thoroughly successful, the gentlemen present expressing their gratification and a desire to attend future meetings of the same character. Due notice will be given of the next meetings.

The annual meeting of members was held on the 9th inst., at Jubilee House, Hornsey Road, N. The PRESIDENT (Mr. J. W. Marchant) was in the chair. Two new members were elected.—The TREASURER presented his balance-sheet, which was the best during the Society's existence, and showed a sound financial condition.—Mr. PITHER gave a report of the results of the outings during the past season, and laid upon the table the Society's album containing the selected pictures taken thereat.—The certificate for the best collection of prints taken at those outings was awarded to Mr. McIntosh, the hon. sec.; and the second award, that of a view album which could only be won by a non-member of the Council, was secured by Mr. A. J. Hewson.—The annual report was then submitted by the PRESIDENT. He dealt with the satisfactory condition of the Society generally, the increased membership, the greater interest taken by the members in the meetings as evidenced by the ready help given by them in the reading of papers and the opening of discussions, and especially dwelt upon the advance in the quality of the work shown at the late exhibition as expressed by the judges. Reference was made to the Affiliation Scheme, and the advantages derived therefrom, and thanks were given to those gentlemen not members of the Society who had rendered assistance by their lectures. —Votes of thanks were accorded to the officers for their past services.—Mr. McINTOSH stated that, finding himself unable to give the requisite time to the secretarial duties, he did not seek re-election.—Balloting for the offices for the ensuing year was proceeded with, and resulted as follows:—President (third consecutive year), Mr. J. W. Marchant; vice-presidents, C. Beadle and F. Cherry; hon. treasurer, F. W. Cox: council—Messrs. H. Smith, Gregory, Walker, Wall, Gill, Mummery, Pither, W. Taylor, Golding, Wynne, Lathbridge, Treadway, and Goodwin; hon. sec., Geo.

Gosling; hon. assistant sec., F. M. Aynsley.—Mr. John Humphries, F.S.A., who was president of the Society during the first three years of its existence, but who is now resident away from London, was unanimously elected an hon. member. Gentlemen wishing in any way to communicate with the Society will please address the Hon. Sec., Geo. Gosling, 13, Lausanne Road, Hornsey, N.

NEWCASTLE-ON-TYNE AND NORTHERN COUNTIES PHOTOGRAPHIC ASSOCIATION.

THE monthly meeting was held on the 10th inst.. the President, **ALEX. S. STEVENSON**, J.P., in the chair.

Mr. S. G. B. **WOLLASTON**, of the Platinotype Company, was in attendance to give his lecture and demonstration of the "New Cold Bath Platinotype Process." The lecture was interesting and lucid, and the demonstration most complete. The attendance was the largest in the history of the Association, and an enthusiastic vote of thanks was accorded to the lecturer.

The annual meeting will be held at the Association Meeting Room, Art Gallery, Newcastle, on Tuesday, January 24th, at 7.30 p.m. Business:—To receive the treasurer's and secretary's report for the past year; election of officers for 1893; to alter and revise the rules of the Association. The remainder of the evening will be devoted to any matters of interest that may arise. Council at seven o'clock.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary meeting, Tuesday, January 11th.—Mr. J. **TRAILL TAYLOR** presiding.

MESSRS. H. **SNOWDEN WARD** and W. Harvey were nominated for membership.—Mr. **GOSLING** showed lantern slides on Paget print-out lantern plates.—Mr. **HUDSON** showed a lantern-slide printing arrangement of design originally given by him, and Mr. R. **BECKETT** handed around a Ross Concentric lens.—The **CHAIRMAN** said the chief advantage of this was its extreme flatness of field.

From the question box:—If a short and long focus lens are both suitable for a subject, which is best to use?—The **CHAIRMAN** said for this time of year short focus was, perhaps, the best; at any rate, it would be for copying. Generally, however, a long focus was best for most purposes, —*Question* 2: Is there any difference in working Solio paper in winter to summer?—*Answer:* None. *Question* 3: Can a bag (gas) that has got stiff be softened?—*Answer:* Best to keep bags in fairly warm temperature. No other answer was forthcoming as to how to renew.—*Question* 4: Is there any advantage in using Monocle lens?—Mr. **HORSLEY-HINTON** said it depended what result was required. The word wanted properly defining.—Mr. **GRANT** thought it suitable for fuzzy pictures.—The **CHAIRMAN**, however, did not quite agree.—Mr. **DEAN** showed a frame of lantern slides, and asked what was the best means of backing them in place of opal glass.—The **CHAIRMAN** advised a mixture of collodion and ordinary spirit varnish.—Mr. **PAGET** (of C. A. Rubowsky & Co.) explained their flash-lamp, and stated that to obtain a continuous flame a double ball was necessary.—The **CHAIRMAN** then called upon Mr. Horsley-Hinton for his paper, "Some Contributories to Artistic Effect."—Mr. **HINTON** then, at length, went into the question of suitable frames, mounts, &c. Photographers, nowadays, thought too much of size of plate, and were afraid to use knife and scissors enough, so that often what would have been a good picture was spoilt by not taking out objectionable pieces Among his remarks, he said he was looked upon as a champion of fuzzy effects, but must disclaim it. He could admire a sharply-defined picture, and often used a small stop. A very great contributory was reflection. Too much hurry was the case nowadays.—The **CHAIRMAN** asked what Mr. Hinton's ideas were about the hand camera.—Mr. **HINTON** said it was to the camera proper what the sketch-book was to the artist.—The **CHAIRMAN** said that with respect to gilt frames he had some pictures in common gilt frames, and which he preserved by the use of solution of celluloid in acetone (amyl). —In answer to a question raised about lantern slides, Mr. **HINTON** said the uncontrollable result produced on the screen stood in the way of their *always* being complete pictures. Mr. Hinton then summed up generally on remarks. He could not give a rule as to when pictures should be broadly treated; experience and judgment must decide that. The idea was to interpret nature as it appeared to impress one. Excursions were generally hurried over. It was more advisable to go, but leave the camera at home until details were fully thought out.

SHROPSHIRE CAMERA CLUB.

THE annual general meeting was held on the 11th inst., when the following officers were appointed:—President, Mr. W. W. Naunton; vice-presidents, J. R. Greatorex, G. Bidlake, W. S. Buddicom, M. J. Harding; treasurer, W. Burson; hon. sec., Martin J. Harding; assistant sec., W. Heath; council, Messrs. W. Alltree, W. Bowdler, Dr. Cureton, J. L. Della Porter, R. J. Irwin, W. G. Preece, J. Pyefinch, and F. W. Williams. A special vote of thanks was passed to Mr. Naunton for his valuable services as secretary since the formation of the Club, and to Mr. Irwin for his services as lanternist. A sub-committee was appointed to consider a scheme for acquiring permanent club-rooms, including dark-room. Five new members were elected. The meeting was adjourned to the 20th inst., for the purpose of revising rules, &c.

THE BRISTOL AND WEST OF ENGLAND PHOTOGRAPHIC ASSOCIATION.

THE annual meeting for 1893 was held in the Association's rooms at the Literary and Philosophic Club, on Friday, the 13th inst.

Mr. H. A. Hood Daniel was re-elected president, Col. Playfair and Mr. Edward Brightman vice-presidents, Mr. F. Bligh Bond hon. secretary, with Mr. H. A. Hutchinson as assistant secretary, and Mr. W. Moline as treasurer. The existing members of the council were re-elected.

Messrs. Cadett & Neale sent a case of sample packets of their "Lightning" plates, which were distributed.

LEEDS PHOTOGRAPHIC SOCIETY.

THE Leeds Photographic Society held its first meeting of the year on Thursday, the 12th instant. Mr. J. H. **WALKER**, President, occupied the chair, and delivered the customary presidential address on his accession to the office. He reviewed in a most interesting manner many features of photography in the past and present and prospects in the future, urging the members of the Society to be earnest and diligent in the work; the advanced and experienced members not to hesitate to give the younger members the benefit of their experience, and the tyros not to be backward in stating their difficulties and seeking information at the meetings. In this way, together with the excellent syllabus which has been prepared for the year, the Society is bound to be unusually prosperous.

Some beautiful coloured lantern slides by the Scioptican Company were thrown on the screen, and proved that both art and beauty can be accomplished in coloured slides, in spite of our usual dislike to them.

The Pall Mall prize slides were then exhibited and were very much admired.

Putney Photographic Society.

Ordinary Meeting, Thursday, January 12th.—Mr. H. Faulkner in the Chair.

Mr. Henry Kimber, M.P., was elected a member of the Society.

Mr. E. L. Morgan, representing Messrs. Fuerst Brothers, kindly gave a lecture and demonstration on development with amidol. In a short preface Mr. Morgan claimed for amidol the following important advantages:—Good keeping qualities in its dry state, ready solubility, cleanliness during manipulation, great energy in bringing out detail without the addition of free alkali, power to give the necessary density, and absence of stain, even in prolonged development. Comparing amidol with other developers, he said that experienced workers might perhaps be prejudiced against it; as practically being a one-solution developer, they might think they were sacrificing some of the power which they possessed in older developers of readily modifying the proportions of the constituent parts to meet the requirements of varying subjects and of over or under exposure; he would, however, prove that amidol also was quite capable of such modification, in cases of over-exposure by using a weak solution and an extra quantity of bromide, for under-exposure a strong solution and only a small quantity of the bromide. For uncertain exposure it was desirable to begin with a weak developer and gradually increase the strength as occasion required. The ordinary stock solution (2 per cent.) is made up as follows:—Amidol, 10 grains; sodium sulphite cryst., 100 grains; water, 1 oz. This solution will keep well in full bottles, well corked, and although after a time it may discolour it does not loses it developing power to any extent, nor does it stain the negative or prints in any way. For use dilute the stock solution with 3 to 4 times its bulk of water, 5 to 20 drops of a 10 per cent. solution of bromide of potassium being added for each ounce of stock solution. This diluted solution may be used successively four or five times without losing developing power to any extent. For his own use Mr. Morgan preferred to keep the following stock solution, which will keep for any length of time:—Sodium sulphite cryst., 1 oz.; water, 20 ozs. For use 8 to 10 grains of amidol powder and a few drops of potassium bromide (1 to 10) are added to 4 oz. of the above solution. Mr. Morgan then proceeded to develop a negative, which had purposely been given a somewhat short exposure, using the ordinary strength of developer; the image appeared in about thirty seconds, showing full detail in that time; development being allowed to proceed, the necessary density was obtained in about three minutes; the result was a brilliant and soft negative of a good printing quality. As showing the capability of amidol for developing bromide paper, he exposed a piece under a landscape negative and proceeded to develop with a solution of the same strength as that used for the negative. In this case also the result was extremely satisfactory, the tone of the print being very like a good platinotype. No clearing bath was necessary, and the manipulation throughout of the simplest. To prove that amidol is really a good all-round developer, Mr. Morgan proceeded to expose two lantern plates, giving the one an exposure of one minute and the other six minutes; still using the same strength of developer, but in the latter case with an additional quantity of bromide, he produced two very brilliant and satisfactory slides. During the demonstration the members put many questions to Mr. Morgan, which he very ably answered. It was apparent, as the demonstration proceeded, that the members were agreeably surprised at the powers of amidol, particularly as the experiences of some of them with other developers recently introduced with a great flourish of trumpets were of a disappointing nature, only confirming them in their preference for their old and tried friend, "Pyro." Mr. Morgan brought several bromide prints for inspection, but a portrait of a native of Morocco, a very fine enlargement, by Mr. Gorin, and developed by him with amidol, showed most strongly that good results can be obtained with it, without previous experience, by an amateur, this having been Mr. Gorin's first attempt with the new developer.

A hearty vote of thanks to Mr. Morgan concluded an enjoyable and instructive evening.

January 23rd, "Rambles with a Camera in North Wales." Lecture, illustrated by lantern slides, by Mr. John A. Hodges.

Leytonstone Camera Club.

Ordinary Meeting, January 11th.—Mr. A. P. Wire in the Chair.

Mr. Tom Symmons gave a lecturette, entitled "Small *versus* Large Cameras." Having explained the various sizes, he went into the advantages and disadvantages. In the larger sizes, he thought there were a number of drawbacks: (1) the expense of the outfit; (2) cost of materials; (3) owing to the weight, the great difficulty in getting about. He having had experience with large cameras, would not advise any beginner to exceed whole-plate; in fact, if only one camera to be purchased, that should be ½-plate. The recent exhibition had proved that enlargements were to be had from small negatives that were equal and in some cases better than direct prints, owing to the facility of dodging and getting better effect in the process of enlargement. He next urged the great importance of getting the best of apparatus. In the discussion which followed, the general verdict was in favour of small cameras.

The Alleged Portrait Frauds.—At Folkestone, on Friday last, George Gould, *alias* Charles Beresford, was charged, on remand, with conspiring with others not in custody to defraud various persons through the Star Portrait Company, the Imperial Portrait Company, Eddy & Co., and the Judge Publishing Company. The evidence called was entirely confined to showing the connection of the defendant with the various firms, the specific charges of fraud not being gone into. The defendant's banking account was put in by the manager of Lloyd's Bank. It showed that the sum paid in from July, 1890, to January this year was £17,787. At the close of the day's evidence, Dr. Hardman asked for an expression of opinion from the Bench as to whether the charge of conspiracy was made out, and the Chairman said they were of opinion that it had been. The prisoner was again remanded.

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PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

6. George Vincent Fosbery, 2, Park Place, Bath, "Improvements in Lanterns and other Means for Illuminating Photographic Dark Rooms."—*2nd January*, 1893.

202. William Phillips Thompson, 6, Lord Street, Liverpool, "Improvements in Portable or Hand Photographic Apparatus or Cameras" (Jean Baptiste Brunel and Albert Reynier, France).—*4th January*, 1893.

312. Henry Bratt Sharp and Howard Cumming Hitchmough, 6, Lord Street, Liverpool, "Improvements in or relating to Photographic Cameras."—*6th January*, 1893.

Specification Published.

2,879. *February 13th*, 1892.—"Cameras." G. H. Cricks, of Woodford Green, Essex; and G. A. Taylor, 53, Norcott Road, Stoke Newington, Middlesex.

Relates to improved means for successively releasing a series of sensitised plates after exposure, also an improved shutter.

The plates are carried in frames, upon the exterior edges of which are projections to pass through slots formed in stops at the front end of the chamber in which the said plates are placed. The plates are pressed forward towards the stops by a spring, but the slots therein are so placed that the projections upon the frames cannot pass therethrough until the plates are moved to the position required. To effect this movement of the frames a slide is provided of the same thickness as the plates, said slide being operated from outside the camera. When one of the frames is moved to bring its projections opposite the slots the spring presses the plates forward, the front plate falling into a receptacle designed to receive it.

The improved shutter comprises a sliding frame carrying the plate or diaphragm for closing the aperture of the lens, such frame being normally retained with the shutter in a closed position by a spring, and opened for exposure of a plate by a rotating cam operated by clock mechanism, and arranged in conjunction with an escapement in such manner that when the cam is released by the escapement it will make half a revolution to open the shutter, the closing being effected by the spring. A stop is provided serving to arrest the rotation of the cam when the shutter is open in order to enable the said shutter to be used for time-exposures.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

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Some time ago, says the *Beacon* (New York), we were told of the engagement of Miss Catherine Weed Barnes to Mr. H. Snowdon Ward, but as the information was of a private nature we did not mention it. Now, however, as it is noticed in the *Photographic Times* of December 2nd, we have pleasure in congratulating the editor of the *Practical Photographer* on having drawn such a valuable prize, although we cannot help owing him a little grudge for taking her away from us.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

NOTICE.—The Index and Title-page for the last volume of the "Photographic News" is now ready, and is sent to the regular subscribers with this issue of the paper. It will be sent to any other readers on receipt of a written request and stamped envelope, or upon personal application at the Publishing Offices.

M. J. A.—There are several good mountants sold which have from time to time been noticed in our columns. Many workers swear by simple starch, but for enlargements we should advise thin glue (hot).

Astigmatism.—The best test, perhaps, is to photograph a sheet of newspaper, taking care that it is quite square with the lens. Of course a series of vertical and horizontal lines will answer the same purpose.

M. K.—The difficulty will vanish if you omit the alum bath between development and fixing.

Oxford.—We cannot insert your letter as it stands; but if you like to modify its incriminating phrases we will do so. We do not for one moment doubt your *bonâ fides*, but we have the law of newspaper libel to consider.

Optical.—A lens, even though it bear a good name, should not be bought under the circumstances detailed before you have submitted it to an expert. If possible, let the maker himself be the judge.

D. O.—You do not realise the strength of the developer, and your results are thin because the plates are over-exposed. Give less exposure, and add a few drops of bromide solution (10 per cent.) per ounce of developer.

Blue Lantern Prints.—1. You can get an approach to a blue colour with Mawson's lantern plates by a formula issued by that firm. 2. The ordinary blue process can be applied to glass plates coated with plain gelatine nearly as easily as it can be applied to paper in the ordinary manner. Or (3) you can do what you want by the carbon process pure and simple. Probably the Autotype Company could supply you with tissue of the colour you require.

F. C. A.—Your difficulties would probably vanish if you adopted one of the chloride papers now in the market. They are of excellent quality, but, like other products of gelatine, must be stored in a place free from damp.

Kansas.—Your letter has been received, and the matter is under consideration.

P. J.—See first paragraph in this column.

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Geological Society of London.—The medals and funds to be given at the anniversary meeting on February 17th next have been awarded as follows:—The Wollaston Medal to Professor N. S. Maskelyne; the Murchison Medal to the Rev. O. Fisher; the Lyell Medal to Mr. E. T. Newton; and the Bigsby Medal to Professor W. J. Sollas; the balance of the proceeds of the Wollaston Fund to Mr. J. G. Goodchild; that of the Murchison Fund to Mr. G. J. Williams; and that of the Lyell Fund to Miss C. A. Raisin and Mr. A. Leeds.

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THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1795. JANUARY 27, 1893.

NOTES.

At a recent meeting of the Vienna Medical Society, Professor Albert uttered a caution in the use of bichloride of mercury, which it is well that photographers should note. Using this poisonous salt almost daily in his professional work, he found, after a time, that he experienced symptoms of dyspepsia, and that, later on, some of his teeth were loosening. He rightly attributed the mischief to absorption of mercury through the skin. Photographers can avoid all trouble of the kind by making it a rule to pour the mercury solution on a negative, which requires intensification, while the plate remains in a dish, and by never touching that plate until it has been thoroughly washed.

Her Imperial Highness the Archduchess Maria Theresa of Austria is both a painter and a photographer. A very perfect photograph of her luxurious studio, from one of her own negatives, forms a recent collotype illustration in our American contemporary, the *Photographic Times*.

A Canadian journal advocates the making of enlarged albumen prints from cabinet negatives by means of the solar camera, and asserts that fine results can be obtained if the camera is kept pointing towards the sun for from two to four hours. British photographers cannot profit by the hint. They can only regard with envy an atmosphere which makes such an operation possible.

The *Photographic Review of Reviews* issues, with its January number, the first of a series of cartoons. Its title is "The Press Club Dinner," and the editors of the various photographic periodicals are represented sitting round the convivial board. Three of the portraits are good, but the rest can hardly be recognised, even with the assistance of the labels attached to them. We may here note that the editorial office of the *Review* has been moved from Birmingham to 57 and 58, Chancery Lane, London.

The Blackheath Camera Club will hold an exhibition of photographs and photographic apparatus, under the presidency of the Astronomer-Royal, on Friday and Saturday, March the 3rd and 4th, when silver and bronze medals will be offered for competition, and a gold medal in a championship class. The judges are Messrs. Cembrano, Davison, and Pringle, and the hon. sec. is Mr. C. W. Piper, of 46, Shooter's Hill Road, Blackheath, S.E.

Another coming exhibition is that of the Filebrook Athenæum Photographic Society, to be held on the 1st and 2nd of March, at the Filebrook Lecture Hall, Leytonstone, Essex. We note that the competition is open to amateurs and professionals alike, that there is no division into classes, that photographs which have already gained awards are placed under a special category, and that each picture in all its details must be the actual work of the exhibitor. Further particulars can be obtained of the hon. sec., Mr. J. W. Spurgeon, Drayton Road, Leytonstone, Essex.

Mr. Harry Furniss has been discoursing, in his own interesting fashion, on cartoons and cartoonists, and (*inter alia*) mentions his own photographic experience. He says that he was once bitten with a mania for photography, but it did not last long. He once had an experience in Switzerland. He bought a very elaborate set of paraphernalia, and thought he was going to do great things, but he never got one single good result out of some dozens of plates which he used. This was one of his attempts at photography, and he does not know where those elaborate paraphernalia are now. It is curious that Mr. Furniss should be quite silent as to his figure photography. We have seen several examples of his work, showing that he must have attained a fair knowledge of the art. He says he never photographs now. More's the pity. It is to be hoped that Mr. Linley Sambourne, who has the reputation of being a skilled photographer, has not followed the example of Mr. Furniss.

In these days of financial uncertainty, when, at any moment, magnates of hitherto unsullied reputation may topple from their high estate, it must be rather embarrassing to a chairman of a company to have a perpetual reminder of the shortcomings of a colleague in the portrait of the latter figuring in a picture representing the board of directors. The chairman of an important trust company is in this position just now. In the days of their prosperity the shareholders wanted to show their gratitude by presenting the chairman with a portrait of himself. He, however, preferred to have a picture of the whole of the directors, and this was painted by a well-known artist at a cost of £3,647. Since then one of the most prominent members of the board has collapsed in a very unenviable way, yet his portrait remains in the group. The chairman, however, cannot complain, as the choice was his own. Perhaps he will, as a financial paper suggests, have the face painted out and that of the secretary or somebody else substituted. The incident suggests an awful possibility. What would be the feeling of a chairman, under such circumstances, if the whole of his colleagues went wrong? And what would he do with the picture?

The members of the London and Provincial Photographic Association found themselves, at the close of a recent meeting, to be more the object of public attention than they probably desired. The maker of a continuous magnesium powder lamp had brought his appliance to show to the members, and towards the end of the evening gave two or three displays, one of these lasting for about half a minute. During the blaze of light, one of the members remarked that a policeman's whistle was going, and, on leaving the hall, a fire escape was observed at the back of the building, where was situated the window nearest to the flash apparatus.

Presently a couple of fire engines dashed up with the accompanying crowd of expectant sight-seers. These naturally had to retire disappointed, but the brilliancy of the light which had induced the idea of a conflagration was unfortunately not the only evidence of the intensity of the combustion.

Although, perhaps, five or six feet beneath the ceiling, the heating power of the apparatus was so great that a portion of its surface was charred to blackness. The occurrence may serve as a warning, not only to other societies, but to photographers who may have occasion to use artificial light at private houses, and more especially at places of festivity where flags and other easily inflammable articles are about. In the present case, the length of time during which the flame was maintained was perhaps more mischievous than the actual intensity of the heat.

It is difficult to understand the reticence of the committee who have the new coinage in hand. Repeated applications have been made on behalf of various illustrated papers for permission to copy or photograph the designs, but the request has always been met by a negative. All that is known is that Her Majesty is very pleased with Mr. Brock's new portrait of herself, and that it is superior to the unfortunate Jubilee fiasco. This is comforting; still the public would like to have had an opportunity of criticising the new designs before they were finally decided. But perhaps it is thought the public have nothing to do with the coinage.

One advantage of photogravure over engraving is that it more readily permits of alteration. Thus Mr. Holman Hunt, not being satisfied with some of the details in the reproduction of his picture of Magdalen Choristers on May morning, worked upon a couple of copies and made several corrections. An assistant then imitated the corrections on to the plate, another proof was pulled, and further corrections made before the artist finally passed the reproduction. The *Globe* says this fashion is "hardly likely to become popular." We do not quite understand why. The public surely will not complain.

Some time ago mention was made in the *Manufacturer and Builder* (New York) of a photograph taken of the interior of the Academy of Music, in which the stage was illuminated with yellow light from monochromatic burners, devised by Mr. Henry Morton, President of the Stevens Institute of Technology, thus reducing to black and white the brilliantly coloured decorations of the scenery and the dresses and banners of the masked figures, representing all the colours of the spectrum, who had previously marched in under a blaze of white light, which brought out every tint with vivid effect. This probably is the most curious monochromatic photograph extant.

THE WIDE ANGLE CLUB.—I.

(INTRODUCTORY.)

IT was an exciting night for Bumbletown. A few months ago three or four of its worthy citizens had in various ways become possessed of cameras; a chemist had started stocking two makes of plates, some sensitised paper, which he termed the "seven moons brand," and pyrogallic acid; and the *Bumbletown Weekly* had devoted a "special" of a column and a half to a history of the photographic art in Bumbletown, upon the occasion of one of these worthy citizens winning an honourable mention in one of the *Photographic Squeaker's* competitions. But this was the culminating point, and all Bumbletown was excited over the matter. They were going to found a photographic club, and visions of medals and decorations floated at once through the minds of the inhabitants.

The crowd at the doors grew impatient, at least, the small boy did; the other part of the crowd (the old man) was more patient, as the hands of the handsome town clock in the jeweller's window foreshadowed the approach of 8 p.m. Slowly up the street a portly figure wended its way, and as light from the tallow candles in the fish shop window shone upon the countenance adorning the figure, lo, the face of the Mayor was revealed. From the other end of the street, quick hurried footsteps revealed the young and active man, in eager haste rushing to his fate. The meeting of these two was watched with fervid interest by the crowd. A hearty clasping of hands, and they entered the dark passage leading to the meeting room, whilst after them, with eyes of awe, the crowd gazed open-mouthed. Anon arrived three others together, and then the doors were shut, the crowd returning home, comforting themselves, with the consolation that they would read all about it in the paper and a pennyworth of fried fish each.

The room upstairs was not so dark as the passage, in fact, it was not a dark room at all. It was conveniently connected by a side door with the "Three Golden Liars" (I'm not sure about the spelling on the signboard), the floor being artistically sanded, and well provided with round-shaped tin dishes.

After a few ordinary courtesies and exchange of compliments, such as

"Glad you were mentioned, old man; you deserved the medal."

"Oh, don't mention it; that print of yours, if you had sent it, would have beaten mine."

"Nonsense, it had no chance."

"Yes, straight I'm telling you."

The Mayor rapped on the table with a convenient vessel of pewter, and asked the "gentlemen to be seated, and come to business." With a preliminary cough and "ahem," he rose midst considerable applause, which was a little damped by the fact that one gentleman was hammering the table with his neighbour's briar, the said neighbour remonstrating vigorously, and said: "Citizens of Bumbletown—(applause)—we are a great nation. (Cheers.) I see before me four worthy representatives of the black art—(laughter, as it was thought to be a joke)—Mr. Brewer, Mr. Squibosh, Mr. Hawkeye, and last, but not least, our young but distinguished fellow-citizen, Mr. Honmention, who has recently proven his prowess with the camera, as other citizens of this important, this great, this fine city—(cheers)—have proven with—ah, with—ah, other things. (Applause, suppressed by Mr. Brewer, as he objected to his toes being trodden on so much.) Fellow citizens, what are we here for, ah—it is well to ask the question—what are we here for?"

Mr. Squibosh suggested that if the drinks were ordered then, it would save the interruption of his Worship's speech later on.

As soon as this was settled the Mayor resumed: "I repeat, what are we here for?" and he looked meditatively at his Scotch hot, with one lump. "Citizens, we are here to found a club—(cheers)—a club that shall so stimulate thought in photographic matters, that it will become a club of national photographic importance. (Great cheering.) We live—ah! ah!—we live in the age of progress. Have we not built a new jail in Bumbletown, have not the worthy authorities of which your humble servant is the conspic—ahem!—the humble head—('No, no')—erected two more lamp-posts, and only added a penny to the rates? (Cheers.) If we can do these things, why should not Bumbletown come to the front in the art, the science, the imagery, the poetry of photography? (Cheers.) To do this we must have union. Did not union fete the force, and do it regardless of expense? What other towns can do Bumbletown can, and, what is more, Bumbletown will come out on top. (Uproarious cheering, during which the Mayor whispered to the boy inattendance, 'Another Scotch hot and one lump.') But you have not come here to-night to hear fine or high-flown sentiments, you do not want flowery language and far-drawn allegory, so let us to business. ('Hear, hear,' from Mr. Brewer.) As Shakespeare aptly puts it:

> 'Go on, and hanged be he who cries enough, and old——'

Therefore to business; pleasure first, you know; and I trust my few remarks have been of interest—then business. Has any gentleman any remarks to make?" and he looked round with a beaming face upon each member in turn.

Each one desired to speak, that was plainly to be seen, but no one cared to be first. At last, at the invitation of the Mayor, Mr. Honmention addressed them. "I ain't a man of words, but of deeds. (Applause.) Behind the camera, I feels at home, but in speaking before a public meeting I'm not a dab. Give me, I says to Sarah, my noble steed, my camera, and I'll wander amongst the—ah!—amongst the—you know where I mean. So, as I sticks to the camera, I'll stick to any club which your Worship thinks we ought to have. I think that is all I have to speak, cause speeches don't run in my line. I sticks behind the camera, and when I sees a view—ah!—ah!—I think that's all I can say."

The Mayor regarded Mr. Hawkeye rather anxiously as he rose with several sheets of notes, and suggested that they should do as little talking as possible, but work.

Quite unabashed, however, Mr. Hawkeye, with a preliminary clearing of the throat, started off: "Your Worshipful the Mayor and Fellow-citizens,—I come not here to listen but to talk—I beg your pardon, that is not quite right—lend me your ears and bid me discourse. (Rather fidgetty applause.) What did Shakespeare say——" (Interruption by Mr. Squibosh: "Never mind Shakespeare, if he's got any objection to this 'ere club, let him come here and say it.") "Well, as I was saying, we ought to have a club, Bumbletown ought to have a club, the citizens demand it, we demand it—(cheers)—and I will therefore propose"—at this point he apologised for turning over the wrong page of his notes which carried him on to the etherial nothingness and vacuity of the pinhole, but as he sat down he proposed that "we hereby thusly and consequently form a club, and that its name be the 'Wide Angle Club,' with the object of prosperity to photography and Bumbletown."

After some little discussion as to the propriety of such a title, one member suggesting that perhaps a distorted view might be taken by outsiders, the name suggested was resolved upon.

Upon the motion of the Mayor the following officers were elected:—

President	James Bumble, C.C., Mayor. (Senior Partner in Bumble & Co., Pork Butchers.)
Vice-President	R. A. Brewer.
Hon. Secretary	A. S. Squibosh.
Hon. Treasurer	P. A. Hawkeye.
Exhibition Committee	W. O. Honmention.

It was decided to print a list of papers and demonstrations, as soon as the Hon. Sec. could make arrangements, but in the meanwhile for the next meeting the Mayor asked for a volunteer. Mr. Honmention then offered to read a paper at the next meeting upon "Medals; how to get them, who gets them, why they do and they didn't oughter," for which he was thanked, after a grumble from the newly elected Hon. Sec. at the length of the title for the circulars. It was resolved by the members that the Council should draw up a code of rules and consider them the next night to save time, reporting upon them at their next meeting, a fortnight hence.

A round of Scotch hots, with one lump, brought a very enjoyable evening to a close.

MULTIPLE COATED OR MULTIPLE FILM PLATES.

BY GREGOR GRANT.

(*Concluded from page* 39.)

FROM the foregoing experiments, I think it may be held that, with proper treatment, the Sandell plates *do* meet the claims made for them by their manufacturers—viz., freedom from halation and capacity to stand an abnormal and almost indefinite amount of over-exposure.

Doubtless the question will be raised, "Does the Sandell plate possess any advantages under ordinary circumstances?" The answer is a simple one—most emphatically, No! But, when you come to interior work, or views with great contrast in them, or where the required exposure is unknown, and cannot be guessed at with any degree of certainty, then as emphatically, "Yes!" For all that is necessary to ensure a good negative is to be quite certain that sufficient exposure is given. How much too much does not appear to matter in the slightest, for, provided the upper film has received sufficient light to correctly render the shadows, the quality of the resulting negative lies in the hands of the operator.

The Sandell plates are made in two qualities—the "General" with two films, and the "Especial" with three, the rapidity of the top film in each case being the same, and the required treatment exactly similar. The rapidity, however, has been very much over-stated—one authority contending that half a second at *f* 64 under trees was sufficient. I am inclined to place it somewhere between that of an Ilford ordinary and a Thomas's E.R., or about Warnerke 20.

As to treatment, I cannot say more than to summarise my previous remarks in various parts of this paper.

The old wet collodion rule of "expose for the shadows, and let the high lights take care of themselves," seems to apply well—give the exposure that you think would best render the shadows on a plate of moderate rapidity, the high lights will then accommodate themselves somewhere in the "sub-strata," the great point to bear in mind being, that if more exposure be given than the shadows will stand on the top film, then a *great deal* more must be given, or the plate will be lost; by which is meant that, if x represent the correct exposure, then $2x$ or $3x$ will mean a flat and, what would ordinarily be termed, a hopelessly over-exposed plate; but if $50x$ to $100x$ be given, then there is every chance of securing a good image if development only be carried far enough.

As for the developer, hydroquinone, or eikonogen, or a mixture of the two, such as "Cyclol" or "Hintoquinone," seems the best; "Cyclol" being recommended by the manufacturers and giving excellent results. Ammonia should be avoided, for, as development is necessarily long—at any rate, in comparison to the exposure—for part of the plate at least, it causes a fogging of the more sensitive film quite different to the increased density caused by the other developers, consequent on excess of light action. Another great point to bear in mind is, that the greater the exposure that has been given, the further must development be carried, not by strengthening the developer, but by patience, for it takes a long time for the developer to soak through to, and act upon, the lower film.

The question will, doubtless, be asked, How is it possible to tell which films have been affected by the exposure, and by what symptoms can development be regulated? This is not so difficult a matter as would at first appear. As with all other plates, it is best to commence cautiously, and with a developing solution of moderate strength; if the shadows remain fairly clear, it is safe to conclude that the plate has not been over-exposed, and development should be carried on the same as with an ordinary plate, judging of the density by the appearance of the surface of the film, and by transmitted light, for nothing will show on the back of the plate except, perhaps, some very brightly-lit portion—which should do so. If, however, the top film completely fogs over, the plate has been over-exposed, and development must then be continued for about half an hour, or until the image shows plainly on the back of the plate; by transmitted light it will then appear perfectly opaque.

The plate is then, in either case, fixed in the usual manner, care being taken that it is thoroughly fixed. The correctly-exposed plate now presents the appearance of an ordinary negative, but the other is still opaque, and must be reduced, or, if before fixing, the image appeared evenly all over the back of the plate, the upper film may be stripped off—that is, if the operator feels competent to do so successfully—for it will have received such an excess of exposure as to yield a complete negative on the lower film, and render the top one superfluous. But stripping is risky work, and its only advantage is that it obviates the danger of reduction stains.

A prominent theorist, Mr. Lyonel Clark, has suggested that a possible failing in the plate's action would be a break in the scale of densities (by which is meant that the upper film might be of the rapidity to correctly render the shadows, and the lower the high lights), but the half-tones would act on both films, and produce an area of undue density; this, however, is only a theoretical failing, for, as a matter of fact, half-tones are rendered with great beauty. Mr. Lyonel Clark further suggested that, to overcome this failing, a plate might be coated with a succession of films, each more rapid than the one below it; but this would, on the face of it, be useless, for no light would reach the lower films at all.

At a recent meeting of the Camera Club, Captain Abney described a modification of the Sandell plate to be used for spectrum photography, in which the upper film is isochromatic; the action, however, remaining, to all intents and purposes, unaltered.

The blue or chemical rays solarise the upper film, and are rendered by the lower, while the red rays act on the isochromatic film only, leaving the other untouched.

The scale rendering of plates thus coated is said by Captain Abney to be exceedingly good, and if, by multiple coating, a plate can be produced that will render by one exposure all the different colour grades of the solar spectrum in their due gradation of tone, and not only those which are visible, but also the ultra-violet and ultra-red rays which are quite invisible to the eye, it must be admitted that the multiple-film plate is a step in the right direction, and that, by its invention, Mr. Sandell has added one more stepping-stone to those by which we photographers hope to cross the flood of difficulties that flows between us and the certain production of an ideal negative.—*A Communication to the West Kent Amateur Photographic Society.*

CURIOUS PHOTOGRAPHIC PHENOMENA AND THEIR APPLICATION TO ENGRAVING.

THE phenomena of successive reversals of the image, produced by the over-exposure of photographic plates to light, present features having a fundamental bearing upon the laws at the root of all photography, and upon the question as to what takes place when light first strikes a sensitive salt. There are two leading hypotheses as to the nature of the invisible image upon a haloid salt of silver, say the bromide. The one is the chemical hypothesis, that the molecule of bromide of silver is decomposed into sub-bromide, or into metallic silver and bromide, but that after short exposures such change is not visible to the eye, the results in the first instance being comparatively so small. The physical or dynamic hypothesis is, that the molecule of bromide of silver is not decomposed but modified where light has acted, so that the bromide can there be more readily separated by the developer. There are difficulties in the way of both these speculations, and the only certain thing about them is, that according to present ideas as to the ultimate constitution of matter, both of them in extreme cases of exposure are true. If the exposure be long enough the molecule is undoubtedly decomposed, for the darkening effect becomes visible. If the exposure be excessively short, too short, perhaps, for man to produce, the molecule cannot be decomposed, for no such thing as an instantaneous action is known. All nature seems, so to speak, to work upon springs; even a bottle of oxygen and hydrogen mixed in the proper proportions to form water cannot be exploded all at once. In relation to the most rapid exposures of plates practically given by photographers, the chemical hypothesis has probably the greater number of adherents; among the most troublesome facts in its way are those connected with the phenomena of recurrent reversals, which is among those now to be considered. In this country, if not in others, no general history of experiments connected with reversals has yet been brought together, so we now give a general outline of much which has been done in the matter, which may serve as a nucleus for a more extended historical research, and which clears up some points about which differences of opinion exist. Some of the best experiments on reversal were performed by Dr. Janssen, at Meudon; yet at a recent meeting of the Camera Club, at which the subject of reversals came up, and when several well-known men of science were present, nobody knew where to find Dr. Janssen's original record, nor could anyone state the exact nature of his results.

In 1839—the year of the publication of the processes of Niépce, Daguerre, and Fox Talbot—Lassaigne, Fox Talbot, Sir John Herschel, and Dr. Fyfe "appear," says Robert Hunt, "to have noticed certain phenomena connected with reversal." He states that in June, 1839, he did so himself, and published them in the *Philosophical Magazine* for September and October, 1840. M. Lassaigne claimed priority in the matter, and Mr. Bayard, Mr. Verignon, and Dr. Schafhaetul experimented in the same direction in those early times. These statements of Hunt's are scattered up and down in chapter ix. of his book, "A Manual of Photography," fourth edition, revised, London, 1854. The nature of the experiments was, in general, that after a paper prepared with a silver salt had been darkened by light, and then washed with iodide of potassium, it would bleach where light acted, so that by exposure under a negative a positive could be obtained. For example, Sir John Herschel, in a memoir read before the Royal Society on February 20th, 1840, states:—"A paper endowed with a pretty high degree of sensibility may also be prepared with the following triple application—viz., (1) acetate of lead; (2) hydriodate of potash; (3) nitrate of silver. And here also a phenomenon, something of the same kind as was described in the subsequent part of the experiment in the last article, occurs; for if paper so prepared and darkened in the sun be washed over with a fresh dose of the hydriodate, the exposure to sunshine being continued, it whitens with great rapidity; and, were it practicable—which I have not found it—to ensure precisely the same ingredient proportions, and the same degree of blackening in the sun to start from, I should not hesitate to propose this as an excellent process for a positive photographic paper."

In the foregoing instances the paper was subjected to chemical treatment between two exposures. The first experiments on record about obtaining a reversal simply by long exposure to light are probably those of Ludwig Moser, described by him in three articles in *Poggendorff's Annalen* for 1842, translated by Henry Croft, and published in "Taylor's Scientific Memoirs," February, 1843. Moser therein set forth that if a Daguerreotype plate be exposed in the camera longer than necessary to obtain the usual positive image, "a picture with all its details is formed; but the bright parts have lost a portion of their whiteness, and appear grey—that is, they do not condense so much of the mercurial vapour. If it be left still longer, on taking it out no picture at all is to be seen; if now inserted into the mercurial vapours, a negative image is produced, or, in other words, these bright parts do not condense any mercury." This seems to be the first record of a true single reversal, and may be of interest to those who now argue that such reversals are due to the hardening of the gelatine by released bromine; in the Daguerreotype plate there was neither gelatine nor collodion to harden.

Recurrent reversals are, however, the chief stumbling-blocks in the path of the advocates of the chemical hypothesis of the invisible image. We have not been able to discover with any certainty the first record of the observation of a recurrent reversal; that research is for the photographic historian of the future. On May 3rd, 1878, at a meeting of the Photographic Society of France, Mr. Leon Warnerke, of Champion Hill, read a paper which was published in the *Bulletin* of the Society for that year. The title of the memoir was:—"On the Solarisation and other Results of Over-exposure: the Cause and the Remedy." In his experiments he used a bromide emulsion—the record does not say whether in collodion or gelatine—and gave an enormous exposure under holes in pieces of card used to act as the negatives. In fact, he burned a yard of magnesium ribbon in close proximity to the printing-frame, and obtained a reversed image where the emulsion had been supported by a plate of glass, and an apparently unreversed image where the same emulsion had been supported by a film. Both images were slightly visible before development, and were brought out with the same solution in the same dish. The pyrogallol developer was weak, and highly restrained. Possibly he used one of the comparatively slow average emulsions of that time. Probably none of the effects described were due to a recurrent reversal.

Whoever may have been the first to discover ordinary reversals, Mr. T. Bolas seems to have been the first to make the phenomenon available for practical purposes, and did so by describing his method and experimentally demonstrating it before the Photographic Society on the 8th of June, 1880. He set forth that a gelatino-bromide plate is soaked for a few minutes in a four per cent. solution of potassium bichromate, and after this it is rinsed for a few seconds in a bath composed of equal volumes of alcohol and water. On removing from the alcohol bath it is laid down on its back, a piece of clean blotting paper is laid on its face, and the paper is pressed gently on to its face by means of a cloth; it is next put in a moderately warm place to dry. Then it is exposed under a negative for two, three, or four minutes in moderate sunlight, or from ten to fifteen minutes in good diffused light, which gives a very delicate and perfect positive impression. The plate is then soaked in a few changes of cold water to remove the excess of bichromate of potash, and developed preferably with pyrogallol; an intense negative is thus obtained. If the exposure has been too short, the development is rapid and the picture flat; over-exposure gives a hard picture which takes a long time to develop. At the beginning of the development the light parts of the plate become darker, and the parts tinted by the long exposure become lighter or appear so by contrast.

Six or seven weeks later an authoritative description of the successive phenomena incidental to recurrent reversal was publicly made in Paris. At a meeting of the Academy of Sciences, held July 26th, 1880, under the chairmanship of the late M. Edmond Becquerel, Dr. Janssen read a note on "The Successive Transformation of the Photographic Image by the Prolongation of Luminous Action," in the course of which he said: "In employing solar light when using our apparatus for celestial photography, I have obtained the following successive transformations of the photographic image:—(1) The ordinary negative image. (2) A first neutral state; the plate darkens uniformly under the action of the developer. (3) A positive image, which succeeds the first neutral state. (4) A second neutral state, opposed to the first, in which the plate is uniformly clear under the action of the developer. (5) A second negative image, resembling the ordinary negative image, but differing by the intermediate states by which it is separated, and by the enormous difference of luminous intensity which is necessary to obtain it. (6) A third neutral state in which the image of the second order has disappeared and been replaced by a dark uniform tint." He adds that these facts have been determined with both gelatino-bromide and tannin plates. He does not claim the announcements as far as the third stage as containing anything novel, but states that positives resulting from over-exposure had previously been obtained in Germany. He therefore, by inference, claims rightly to have been the first to obtain recurrent reversals by long exposure. He says of item No. 5:—"To obtain this negative image of the second order an intensity of luminous action is necessary, more than a million times greater than that which gives the ordinary negative image."

(*To be continued.*)

THE USE OF PHOTOGRAPHY IN PHYSICAL RESEARCH.

THIS is the title of a very interesting and instructive lecture delivered before the Physical Department of the Brooklyn Institute of Arts and Sciences, December 13th, by Prof. Edward L. Nichols, of Cornell University.

The lecturer began by stating that photography is now used in almost every branch of physical research; that it is often used advantageously as a substitute for drawing when making observations. Prof. Nichols projected upon the screen a number of views, illustrating the exploration of the magnetic field, showing the lines of force, and of various phenomena, which have heretofore been illustrated by drawings made by the hand of the observer. In some cases the hand-made drawings compared favourably with the photographs, while in others they appear to be incorrect. The lecturer spoke of the value of photography in making long-continued observations; also in making observations of phenomena developed instantaneously, as in the case of lightning flashes, electrical discharges, sound vibrations, &c. He also showed upon the screen a plate illustrating diffraction fringes formed by a small triangular aperture in a piece of tinfoil, the figure being very intricate, and altogether different from what might have been expected.

An interesting illustration was that of photographs of the manometric flame, the flame for this purpose being produced by a concentric burner, the illuminating gas being supplied to the central orifice, while the oxygen flowed through the annular orifice. The photographic flames produced in this way were very bright, clear, and sharply defined, and although drawings heretofore made compared favourably with the photographic record, they were not, of course, as accurate as the photographs.

Interesting views of the electric arc were shown, with which the hand-made drawings heretofore used compared very favourably. The photographs, however, revealed some phenomena which had not been observed by the eye. Among these were the brilliant particles thrown off from the arc, also the superior actinic quality of the light given by the incandescent copper covering of the carbons. A photograph of an arc on an alternating circuit showed a succession of light flashes, proving the intermittent character of the arc when produced by an alternating current. Other peculiar features were shown, among them an illustration of the arc oscillating from one side of the carbon to the other. This the lecturer supposes to be due to the attraction and repulsion of the earth's magnetism. He stated that the singing of the arc was clearly due to rapid intermissions, and that the pitch of the sound proceeding from the arc was what would be expected from the rate of the reversals of the current.

An attempt has been made to produce a photographic record of the alternating current by means of a telephone having attached to its diaphragm a mirror, the incident beam being projected on the mirror, the reflected beam being received on a moving sensitive plate. The result showed that the fundamental vibration of the telephone diaphragm interfered with the production of a correct record. For this method was substituted one in which a stream of mercury carried the alternating current, the apparatus being so arranged as to allow the stream to pass between the poles of a magnet. The mercury was oscillated by the attraction and repulsion of the magnet, the movement corresponding exactly with the reversals of the current. The mercury stream was photographed through a slit located at the point of greatest amplitude of vibration, and the curve produced was the sinuous curve expected from an alternating current produced by a machine working normally.

One of the most interesting illustrations of the evening was that of sun spots taken by means of the spectroscope This method of investigation appears to have shown conclusively that the fecula around the dark portion of the sun spot correspond with the flames projected from the sun.—*Scientific American.*

PATENT OFFICE

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, JANUARY 27, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
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Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

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EVANESCENT NEGATIVES.

ALTHOUGH the introduction of gelatine plates has done so much to advance the art of photography, and has found so many new applications for it, there are not a few old workers who sigh for the wet plates of old, and maintain that they possessed certain qualities which are denied to gelatine. In one point at least we must agree with them, and that is in the far more permanent nature of the negatives produced by the older process. This was lately brought home to us in a very forcible manner. Upon clearing out an old cupboard we came upon a packet containing three or four dozen wet plate negatives, which were produced nearly twenty years ago. No especial care had been taken in their preservation; they were simply wrapped in paper, and loosely tied round with string. Yet, on examining these negatives, we found them to be in every respect as good as on the day when they were exposed in the camera, and ready once more for yielding any number of positives which we might require. The cupboard was by no means a dry one, and the paper in which the negatives were stored was distinctly damp to the touch. It need hardly be observed that gelatine negatives stored under such conditions would have deteriorated to such an extent that they would have been useless. And although if protected by varnish destruction would have been delayed, it would have followed all the same.

The preservation of modern negatives is a matter of serious import, and one to which enough attention is seldom given. The average worker is content, generally, if he produces a good negative, and obtains a certain number of prints from it. His interest in it then declines, and "fresh fields and pastures new" claim his attention, and cause him to forget the old. In this way negatives accumulate, and unless their owner has the gift of order—which is not always associated with artistic tastes—his old negatives gradually deteriorate as fresh ones accumulate to spoil in their turn. In this way, much good work is absolutely being destroyed, and little is done to check the evil. In large establishments, where everything must be done in a systematic manner, or the business could not be carried on, this deterioration of negatives is not so pronounced. It is the small worker who is the principal loser by such defects.

The gradual destruction of a negative by bad storage and exposure to atmospheric influences is the necessary outcome of carelessness, and need not be considered here. But there are other causes at work which operate in a disastrous manner against the life of a gelatine negative. Many will say that the principal one is the want of sufficient washing, and that all negatives would retain their pristine vigour if only their producers were more lavish with the water-tap. This is the popular idea, but we feel convinced that it is an erroneous one. If a negative, after fixing, be submitted for five minutes to the action of a rose tap, the most careful test will show but small traces, if any, of the fixing salt, and, if after such treatment, it be placed vertically in a grooved washing trough for half an hour, it may be considered perfectly free from hypo. What constitutes a far greater danger to the negative is imperfect fixation, and this we feel convinced is the principal cause of fading negatives.

All the text-books caution the photographer against removing the negative too soon from the fixing bath, and most of them tell him to let it remain for some minutes after every trace of the unaltered bromide has been dissolved out of the film. This caution is hardly sufficient; the plate should remain many minutes in the hypo bath after it has cleared. And the reason for this is obvious. When the plate is first submitted to the action of the fixing salt, there is formed in the film an insoluble hyposulphite of silver, which afterwards gives place to a soluble form of the same salt. Time must be allowed for these invisible changes to take place, and if the plate is withdrawn from the bath prematurely it most surely carries with it the germs of its own destruction, however rigorously it may be afterwards washed.

Another matter with regard to the fixation of negatives, which we believe is exercising a mischievous effect, is the use of what we may call compound fixing baths.

New mixtures are constantly being brought forward as alleged improvements on the plain solution of hypo and water. One experimenter will recommend the addition of a certain quantity of carbonate of soda, which is certainly harmless if it does no good. Another will favour a mixture of alum and hypo, while others are not content without compounding their fixing baths with bisulphite of soda, acetic acid, &c. The addition of alum is mischievous, because it hardens the film and renders it impermeable to the washing water, and also because it causes an evolution of sulphur to take place—as is readily ascertained by the smell. Any addition of acid will cause the same evolution of sulphur, and plates fixed with such a bath are liable to be affected thereby.

The temptation to use some of these new-fangled fixing baths seems to lie in the pleasing black and white colour which they confer upon the negatives. This is a ridiculous reason indeed for risking the permanence of one's work. A yellow negative generally furnishes a far finer print than will one of the pretty grey kind, and if it is a matter of great moment to the operator that it should not be yellow—a refinement of procedure which to us is inexplicable—its tint can be easily changed in a clearing bath. We are convinced that deterioration of gelatine negatives would be a thing of the past if it became the universal practice to fix them thoroughly in plain hypo, to wash sufficiently, and to treat them when dry with a varnish of good quality. Careful storage would then become a matter almost of secondary importance.

The Alleged Portrait Frauds.—George Gould, *alias* Charles Beresford, was further charged at Folkestone, on Friday last, with conspiring to defraud various people by means of free portraits. Superintendent Buck, of the Margate police, first gave evidence of having cautioned the defendant's partner, Lorraine, who was trading at Margate as Austin & Eddy. Miss Phipps, who had been in the service of Gould, at Bournemouth, Worthing, Margate, and Folkestone, described the system of doing business, stating that nothing was done to any portrait enlargements until the money had been sent for the frame. The prisoner was again remanded.

PHOTOGRAPHY IN FRANCE.

BY LÉON VIDAL.

Course of the National Conservatoire of Arts—Recognition of the Public Utility of the French Society of Photography—Toning and Fixing Baths—Of the Duration of Time of Exposure—Of Scenic Photography—Optical Theatre by Lantern Projection—Photographic Societies of the Departments—Dark Slide, with Intercalated Rollers—Photographic Correspondence with Newspapers and Rapid Impressions of Current Events to be sent to the Prefecture of Police—Coming Publication of a General Annual of Photography.

THE success of the public conferences of the National Conservatoire des Arts et Métiers, during the past year, has resulted in the inauguration of a course of photographic tuition, to be commenced this winter. This course is to be divided into two distinct series of conferences, the one relative to ordinary photography, the other specially devoted to industrial photography. During this course the pupil will have the opportunity of studying the theory and practice of the principal operations, and, after mastering these leading principles, will be in a position to apply them practically. He must not, however, be disheartened by one or more failures, almost inevitable to beginners, before his efforts are crowned with success.

The institution of this course may be regarded as the first step towards the establishment, sooner or later, of a regular school of photography in connection with this admirable national academy.

Another important fact to be regarded is the recognition, by a Presidential decree, of the public utility of the French Society of Photography. This legal recognition had been ardently desired for a very long time. It has already gained to the Society the privilege of receiving legacies, and has ensured to it a definite civil status, at the same time paying a gratifying tribute to its long useful, and prosperous career.

It was, at the last meeting of the Society, that an interesting discussion arose as to the degree of value which ought to be accorded to combined toning and fixing baths, as to which opinions have been divided, a proof that the question still remains an open one.

M. le Commandant Joly made a proposition to test the greater or less degree of durability of prints treated with this combined toning and fixing process.

An article, published by a French photographic organ, the *Amateur Photographer*, upon "The Duration of Time of Exposure," contains assertions which we cannot altogether overlook. We are perfectly ready to admit that experience may, in most cases, be a sufficient guide as to the duration of exposure, but, as a principle, it seems to us essential to have some means, were it only approximately, to determine the right time of exposure, so as to avoid finding oneself quite at a loss when engaged in operations a little out of the beaten track—under trees, in shadow of any sort, in interiors, &c.

There is evidently no such thing as a perfect photometer, but the nature of the means employed is really of little importance, provided the result arrived at is satisfactory.

It is not an unusual thing to see the time stated as *two* minutes when it ought to be *forty-five!* In such cases the operator is apt to accuse the sensitive plate of being good for nothing, whereas, in reality, there is no one to blame but himself. We shall never cease to urge that, with an art, in which light is the principal factor, no means ought to be neglected which are likely to conduce to a thorough understanding of its powers.

Certain of our illustrated publications contain specimens of photographs combined with stage effects. These are pictures of scenes with two or more characters, and are intended for lantern projection in such a manner as to illustrate the course of a recitation. With actors the effect of such a combination would be quite charming, especially if the persons supposed to be speaking were hidden behind a curtain. Some performances of this kind are in preparation for a *soirée*, which is being organised for the benefit of the Association of Mutual Help, the Photographic Union.

There will also be an effort to realise, by a series of successive projections of the same subject, the effects of M. Reynaud's Optical Theatre, which are exhibited at the Musée Grévin.

The number of photographic societies in the Departments increases in proportion to the constantly swelling ranks of the amateurs. Most of these associations, whilst they are devoted to the progress and encouragement of photography, at the same time endeavour to take advantage of the great popularity of the art to obtain reductions in the prices of materials and to make special profits. This course of action has been very freely criticised, but we confess that we see no reason why this essentially practical side of the question should be ignored. There is really nothing in it opposed to the primary interests of photography. The mercantile aspect of the matter has its own importance. It is simply a matter between seller and buyer, and one may easily understand that the latter desires to get as much value as can be procured at the least possible expense.

M. Julien has presented to the Society of Photography dark slide, to work with intercalated rollers in such a manner as to utilise the vacant space by the interposition of a second roller. When the first has been used one can then have recourse to the other, by which means a greater supply of sensitive material is always at one's disposal The idea appears to us a good one, and is certainly worthy of a trial, unless any inopportune patent should be in the way to impede us in our search after improvements.

Owing to the facilities afforded by gelatine-bromide paper a new industry has arisen, which consists in the almost immediate despatch to the newspapers of photographic proofs of interesting events. For instance, an explosion takes place. The photographer at once flies for all his instruments; artificial light, if natural light fails. The negative obtained, he rapidly takes from it the requisite number of proofs. By the application of the negative—still wet—to the gelatine-bromide paper, the development takes place, after an impression, by the light of a wax candle. The fixing and washing is reduced to a very short time, and the proof, dried upon a warm plate, can depart for its destination a few moments only after the event. It is only necessary to be always on the alert and ready for action on the shortest notice. The Prefecture of Police would certainly do well to utilise a means by which the scene of an accident may be faithfully represented within a few moments only of its occurrence.

A Commission is about to publish, in the name, and under the auspices of, the National and International Associations of Photography, a General Annual of Photography, containing intelligence and documents, useful both to amateurs and professionals. This Annual will, if properly supported, be a sort of condensed review of the general progress, and of all the varied interests and manipulations of our marvellous art.

NOTES ON METOL AND AMIDOL DEVELOPERS.

BY COLONEL J. WATERHOUSE, I.S.C., ASST. SURVEYOR-GENERAL OF INDIA.

I HAVE not been able to work much more with metol and amidol, but the following few notes in continuation of my last may be of interest.

Metol, I find, seems to work best with potash carbonate, but it has a decided tendency to give veiled images, and may require a little bromide to give the best results. The stock metol solution with sodium sulphite keeps well, and it is altogether a clean developer.

The electrolysis of metol solution presented some peculiarities, and made up as a developer with carbonate of lithia it has shown itself more active in evolving hydrogen than any other developing agent yet tried except ferrous oxalate. I have not yet been able to try a metol-potash solution in the voltameter.

A solution of metol at 1 to 200 of distilled water was electrolysed in a tube voltameter with platinum electrodes, using 4 gravity cells, giving a fairly constant current of half an ampère under a pressure of 4·4 volts. The current through the voltameter at starting was about 10 milliampères, with a pressure of 2·8 volts; but after about 10 minutes it sank to 6·5 milliampères, with a pressure of 2·3 volts, and remained steady at that for the next 20 minutes. The yield of hydrogen was about ·3 c.c. in 5 minutes; ·5 c.c. in 10 minutes; ·1 c.c. in 20 minutes, and about 1·5 c.c. in 30 minutes. A purplish substance formed round the anode, colouring the solution in the oxygen tube and working out into the body of the solution, which, at the end of the experiment, was of a purplish-brown, inky colour.

With silver electrodes the result was very different. The current through the voltameter at starting was about 8·5 milliampères, with a pressure of 2·5 volts, and in about 30 minutes it had slightly increased to 8·75 milliampères with a pressure of 2·55 volts. The yield of hydrogen was greater than with platinum electrodes, being about ·3 c.c. in 5 minutes; ·7 c.c. in 10 minutes; 1·3 c.c. in 20 minutes; 1·9 c.c. in 30 minutes. In this case the solution round the anode and in the oxygen tube remained quite clear while the purple substance was formed about the base of the cathode, discolouring it and the solution in the hydrogen tube. The anode was covered with a pulverulent deposit of silver, and very finely precipitated silver was also diffused in the solution. In both cases the hydrogen formed a brownish froth at the top of the hydrogen tube, and it was difficult to estimate the amount of gas liberated. A second experiment with a battery of three dry cells gave a similar result.

A solution of metol and lithia carbonate—

Metol	1
Lithia carbonate	2
Sodium sulphite	10
Water	200

—was electrolysed with platinum electrodes and a current from 4 gravity cells. The current through the voltameter at starting was 35 milliampères with a pressure of 3·25 volts, and remained fairly steady. In 5 minutes 1·8 c.c. of hydrogen were given off, and in 15 minutes 6 c.c., which is a very much larger proportion than usual. Some gas was also given off from the anode, but not in measurable quantity. The hydrogen was frothy as before. After 15 minutes the solution was only slightly yellow. The anode was surrounded by a deep yellow solution, and the solution in the oxygen tube was yellow. In the hydrogen tube it was quite colourless.

Amidol.—A plain solution of amidol at 1 to 200 of distilled water was electrolysed with platinum electrodes and a current from four gravity cells. At starting the current through the voltameter was 10 milliampères with a pressure of 2·1 volts, which decreased to 9 milliampères and 1·75 volt in 30 minutes. The yield of hydrogen was ·5 c.c. in 5 minutes; 1 c.c. in 10 minutes; 1·8 c.c. in 20 minutes; and 2·3 c.c. in 30 minutes; about ·5 c.c. of gas was also evolved from the anode. The anode was stained brown, and the solution turned a deep claret colour. No decolorising action was noticed in the hydrogen tube.

With silver electrodes and the same battery and general arrangements, the current at starting was 23 milliampères with a pressure of 3·1 volts, and at the end of 30 minutes it was 19 milliampères with a pressure of 3 volts. Hydrogen was given off more freely than with the platinum electrodes, the yield being in 5 minutes, ·6 c.c.; in 10 minutes, 1·3 c.c.; in 20 minutes, 2·4 c.c.; and in 30 minutes 3·5 c.c. No gas was set free from the anode. The anode was covered with a compact deposit of dark purple on the outside and greyish inside, which separated afterwards in flakes, probably an oxychloride.

The cathode was quite clean. The solution was very dark but clear, and no decolorising action was noticed in the hydrogen tube.

It may be noted that if a solution of amidol be added to a solution of silver nitrate, a thick white deposit as of chloride of silver is at first thrown down, but the solution speedily takes a rich crimson colour and the precipitate is re-dissolved, silver being reduced.

The voltameter used on the above experiments consists of a glass vessel holding about 4 ounces of solution, closed at one end with a cork about 1$\frac{1}{4}$ inch in diameter. The electrodes are of platinum or silver, about $\frac{3}{8}$ inch wide, 1 inch long, and about 1 inch apart, the wires from them passing out through the cork below. The gases are collected in graduated measure glasses divided into tenths of a cubic centimetre.

The galvanometer used is one of Edelmann's absolute unit galvanometers reading up to 12 volts with 1,000 ohms resistance, or to 12 milliampères with 100 ohms resistance; with 10 ohms resistance up 120 milliampères, and with 1 ohm resistance up to 1,200 milliampères. It also has a separate shunt of 0·1 ohms resistance, by which stronger currents can be read up to 12 ampères and an extra resistance of 9,000 ohms, which enables pressures up to 120 volts to be measured. I find it a very useful and convenient instrument, and it is quite portable.—*The Journal of the Photographic Society of India.*

* * *

SOME CONTRIBUTORIES TO ARTISTIC RESULTS.

BY A. HORSLEY HINTON.

MY intention in engaging your attention to-night with some of the minor matters which may or may not contribute to the artistic result of our work, was not to deliver a discourse of a learned kind, but rather to select one or two matters, and, having expressed some views thereon, to have left the thing to general subsequent discussion. Those who are sufficiently serious in their endeavours for improvement probably have as much solid food as they can digest provided by the weekly journals, so that I sometimes think our lectures and essay readings at society meetings are not always the best possible appointments for the good of individual members. Thus, for instance, as a contributory to general good effect, I might have selected frames and mounts. I should have raked together specimens of mouldings and cardboards from the four quarters of the earth, and come laden like a picture framer's agent. I should then have suggested the respective merits of black and gold, white and gold, English gold, and the gold which, though it glitters, is made in Germany, dark woods and light woods, black or brown. Then there would, of course, be plushes and silks and wondrous fabrics to be considered; there is the clear white glass and the greenish glass, with all sorts of specks and bubbles in it, and a hundred other aspects from which one may usefully consider and discuss the framing and mounting of our pictures. It is an important matter; a good picture is worth well mounting; and in order to decide on the mount most suitable, no ordinary care, judgment, and taste are needed.

Exhibition Frames.

As it is, however, I have none of these specimens here, nor perhaps is it necessary to have such. Most of us have seen a few exhibitions, and in that case have had opportunity of seeing every kind of frame which human ingenuity could invent, and we must in many cases have been convinced that with some competitors the frame was the thing exhibited, with some apology for a picture thrust in the opening just to fill it up. I have thought sometimes that in the frames you may find an index to the exhibitor's character and condition. There's the man of magnificent ideas, but lacking the means of carrying them out, glorious in florid gilt, crimson flock inches wide ; and he who has money and loves to spend it, who frames his things regardless not only of expense, but of the fitness of things. The man of original ideas is soon recognised, and often his originality gets the better of his judgment, and the unconventionality becomes affectation, and he who copies or imitates is apt to imitate blindly, and misapply the models which he has set up.

And now, if one should say, What amongst the many ways of framing and mounting is the best which will secure for me the commendation of those who judge? I should say that your good taste in framing will be best displayed when your frame itself is not noticed. No paradox is this, but solid truth ; and hence one advantage of having every picture in the room framed with uniformity ; no *one* attracts more than another, and so we shall escape that most irritating remark, as open-mouthed wonderment says, "What a beautiful frame!" I well remember visiting Mr. F. Hollyer's exhibition of photographs at the Dudley Gallery privately, with some half-dozen *confrères*, and immediately on entering the room each one of our number exclaimed, or his looks expressed it, "What capital framing!" Then we laughed that we, too, should have done what so many have been ridiculed for doing—admiring the frames before thinking of the pictures. But do not mistake me ; the case was very different ; it was not actually the frames that awakened remark, but the excellent judgment shown by the artist in using such material, and of such colour, that, although we could if we thought about it tell what manner of frames were there, yet throughout a walk round the gallery one was never conscious of frames at all. The pictures might as well have been let into the walls of the building, and been part and parcel thereof. To my mind that is ideal picture-framing.

The Right Frame and Mount to use.

Can you remember, for instance, some picture, some photograph, which pleased you a good deal, but, if asked, you cannot remember anything of the mounting or frame? Well, then, be sure that was just the right frame and mount for that particular picture. How are you to imitate it if you can't remember what it was like? My good sir, no one suggests—or, at least, I do not—that you should imitate that or anything ; what suited that picture may not suit yours ; your only way is to select such a surrounding for your picture that it shall be wholly forgotten and kept in subjection when looking at the picture. Someone challenges me by referring to the ponderous mass of gilt which usually surrounds the best of paintings. Well, the way to avoid attracting attention is sometimes to do the time-honoured ordinary and usual thing, and so it has become customary to put oil paintings in heavy gold frames. Perhaps the safest thing is to follow so widely adopted a custom. Still, we may notice already in some of the newer picture galleries the conventional gold frame does not rule supreme, quite a number of black wood mouldings being introduced ; moreover, the artist's fine contempt for the frame-makers' craft is seen inasmuch as somewhat shabby and far from new frames are employed, but with just that amount of good taste which, without effort or intention, saves the artist from error in the opposite extreme. I have hinted that the conventional and ordinary may, when we are in doubt, be the safest course to adopt. I give this as a point for discussion ; and further that, all things considered—and I must emphasise this qualification very strongly—all things considered, and allowing for some exceptions, the safest and best mounting for our photographs, as taste and feeling goes at present, is the plain wood, oak or dark colour, and the cream-toned mount on a white board, as has become very widely used.

But I fancy already some one is beginning to resent my expending so much time in talking about so dry a subject as frames and framing.

Cutting Down Prints—The Knife and Scissors.

Well, then, if I had had proper time to prepare my subject for you this evening, I should have brought here to-night a printed photograph cut down to all manner of sizes, and I would have discoursed on the scissors and knife as a powerful contributory to final artistic result. As it is, I have brought no examples ; I content myself with submitting to the suggestion that, as a rule, we are all too much afraid of using the knife. We are too inclined to be influenced by the standard commercial sizes ; if 12 × 10 is the size of our plate, we must fill every inch of it ; this at least seems to be the prevailing idea. Even those who are thoroughly acquainted with the often-used arguments in favour of liberty of size and shape, still, as it were, reluctantly fall into the groove, and strive more than for anything else to make the subject fill the entire plate.

There is nothing new in all this : our teachers have been pointing out the advantages of cutting down our prints, so as to improve the composition, for years past, still we may notice the same old faults committed on all hands, for want of a little strength of mind in putting in the knife and cutting away some pretty little bit, some favourite corner, because, although good enough itself, it does not help the picture as a whole—and it does require no small strength of mind, as I myself know full well. Am I not conscious of being a grievous sinner myself in this direction? It is hard to deliberately cut away and destroy some, it may be, particularly interesting object, something especially well rendered, because it does not help the picture as a whole ; but its good qualities, technically considered, must be no reason for saving it. By this I do not, of course, mean that the chief and central

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object in a composition is to be cut away, though it sometimes may happen that the object we had intended as an important item in the scene does not quite come up to our expectations, and we can secure a satisfactory picture by reducing the size of the print very considerably. To give you an example, I not very long ago spent a day with the camera on the marshes below Old Winchilsea. Some of you may know the spot, and will remember how delightfully the abrupt hill on which Winchilsea is built rises from a vast green level. Here black-faced Kentish sheep browse by thousands, and I conceived the idea of getting a group of sheep on the left of the foreground and including the hills in middle distance. And so I did, yet, when printed and finished, the thing was far below my expectations, and I could not for a long time decide what was amiss. I was so intent upon my picture of sheep that it never occurred to me that the sheep and the hills had no connection until, with a boldness of which I am not often capable, I cut the thing in halves! Now, I found I had, by two strokes of my knife, constructed a picture in the half which still contained the hills, but; alas! the group of sheep, which I had waited hours for, which I had wearied my attendant in driving and coaxing into position, were abandoned—the object of all my care and patience is cast into the waste-paper basket.

When producing the first print from a negative, I usually lay it out flat, and take four strips of brown paper and lay them so as to temporarily frame my print; then I shift them in a variety of ways, each time including within their boundaries a different part of the print. By this means I ascertain what part of that landscape is best retained and what best discarded, often with the most heart-breaking results. How often has a 15 × 12 view, made with great care, been reduced to as small as 6 × 4? And when I have recalled the real hard work and fatigue which attended the carrying of large camera and heavy apparatus, it seems a good deal to have gone through for the sake of a little print.

(To be continued.)

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

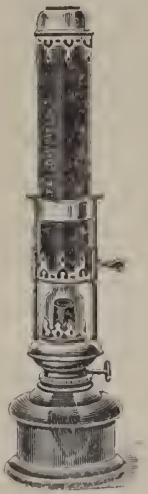
Applications for Letters Patent.

468. STEPHEN OLIVER TAYLOR, 19, Bowling Green Street, Leicester, "Improvements in Lighting Apparatus for Use in Photography."—*10th January*, 1893.

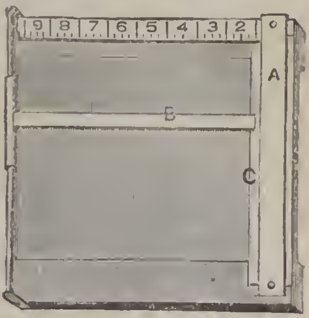
614. SAMUEL JOSEPH LEVI, ALEC JAMES JONES, and EDWARD HOLMES, 71, Farringdon Road, London, "Improvements in Photographic Dark Slides."—*11th January*, 1893.

741. WILLIAM HALL WALKER, 47, Lincoln's Inn Fields, London, "Improvements in and Apparatus for the Manufacture of Films especially intended for the Production of Transparent Films for Photographic Purposes."—*12th January*, 1893.

APPARATUS.



MR. FALLOWFIELD has introduced a dark-room lamp, at a remarkably low price, which presents an advantage not often met with in apparatus of this kind. It is a mineral oil lamp of good appearance, as may be seen by the annexed illustration; but its novel feature is its double, concentric chimney, the inner one being of orange glass, while the outer one is deep ruby. This outer one can be made to move upwards on a couple of parallel bars, and can be fixed by the turn of a set screw. In this way yellow light can be secured for the working of chloride plates, slow lantern slides, &c., while the two screens combined can be placed in position when more sensitive compounds are being dealt with. But for ordinary development of negative plates and films the lamp will be valued; for, as everyone knows, a partly-developed plate has lost its extreme sensitiveness, and can be finished in an orange light that would quite spoil it at the commencement of operations. This lamp seems to fulfil the conditions required most admirably. Its price is 5s. 6d.



THE parallel trimmer patented by Mr. W. R. Baker, of Wallingford, which can be obtained through any dealer, is a most useful adjunct to the photographic workshop. By its means prints can be cut down squarely to any size required, the edges can be cut strictly parallel to the lines of the picture, and the horizon line is sure to be horizontal. This last advantage is an important one in these days of hand-camera work, as anyone will at once see. The apparatus can also be used for cutting masks for lantern slides.

MESSRS. PERKEN, SON, & RAYMENT inform us that the handsome prizes of photographic apparatus recently offered by them have been awarded by the judges as follows:—

Class I., Landscape with and without figures.—Sub-Class A: C. Field, WestBromwich; Sub-Class B: W. D. Welford, Birmingham.

Class II., Seascape.—Sub-Class A: Mrs. M. E. Marriott, Liverpool; Sub-Class B: Charles M. Berry, Belfast.

Class III., Portraiture and Figure Study.—Sub-Class A: John H. Gear, London: Sub-Class B: John Wickens, Bangor.

Class IV., Instantaneous Work.—James W. Morgan, Tunbridge Wells.

It may be noted that the names were not disclosed until after the judges had given in their awards, when envelopes bearing mottoes only, sent in by the competitors, were opened, and the names revealed.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

January 19th.—Mr. A. Mackie in the Chair.

The Chairman referred to the death of Mr. W. Bedford in feeling terms, and added that there was no man in the photographic world so much loved as their late member. An address of sympathy and condolence to Mrs. Bedford was moved by Messrs. Freshwater and Debenham, and directed to be forwarded.

Packets of the Paget Company's printing-out plates were distributed amongst the members.

Mr. H. Snowden Ward showed a retouching pencil actuated by electricity. The point being eccentric with the axis of the holder, a series of small circles or loops was made in the direction of the line traversed.

Mr. Debenham said that, furnished with a steell point it should be useful for that kind of retouching—the removal of a portion of the film—that was done with difficulty by the point of a knife.

Being lantern night, slides were shown, including a very interesting series representing the effect of electrical discharges upon a gelatine-bromide plate. The negatives had been made by Mr. A. A. C. Swinton, an electrical engineer. Slides by Messrs. Benham, H. E. Davies, Avory, Chang, and Farmer.

The Benevolent Society.

A meeting of the Committee was held in the rooms of the Photographic Society of Great Britain on Friday last, Mr. Mackie in the chair. Before opening the business of the meeting, the Chairman feelingly referred to the death of Mr. Wm. Bedford, the Chairman of the Committee, which had occurred that morning.

An application from a photographer, who had previously been assisted by the Committee, but who had only been able to secure odd jobs during the winter, and who was again in difficulties, was considered. The sum of £2 10s. was granted, and the Secretary was also instructed to pay the applicant's rent for several weeks if that should be necessary.

A second application was from a photographer who had been in business thirty years, but now incapacitated by blindness. Applied for a grant to assist in refurnishing part of his house, so that his family might eke out a subsistence by letting furnished apartments. The sum asked for was granted, subject to the statements being verified and references satisfactory.

The case of an applicant to whom a loan had been granted some time ago, and repayment of which was overdue, was discussed. From investigations made it seemed as if the defaulter was attempting to evade repayment. The Secretary was instructed to pursue the inquiries further, and if it appeared that the defaulter was now able to pay, to take immediate legal proceedings for recovery.

The report and balance-sheet were discussed, and the Secretary was instructed to call the annual meeting for February 3rd.

Richmond Camera Club.

Weekly Meeting, 16th inst.—Mr. Davis in the Chair.

Mr. G. W. Ramsay read an interesting paper, entitled "A Comparison of Different Printing Processes." After a short historical sketch of the evolution of modern printing processes and a few remarks upon combination printing, Mr. Ramsay proceeded to notice in detail the principal makes of paper, both for printing out and for development, now in the market, showing specimen prints on every variety. He summed up his "comparison" by quoting the toper's judgment on whiskies—"All are good, but some are better than others."

Tooting Camera Club.

Ordinary Meeting, 19th inst.—The President in the Chair.

Mr. L. E. Morgan, of Messrs. Fuerst Brothers, demonstrated the properties of amidol as a developer. He proceeded with his demonstration in a similar manner to that fully reported by the Putney Society in our last issue; it is therefore unnecessary to give full details in this notice. A pleasant and instructive evening was brought to a close with a vote of thanks to Mr. Morgan.

North Middlesex Photographic Society.

The first lantern night of the new session was held on Tuesday, 24th inst., at Jubilee House, Hornsey Road, about ninety members and friends partaking of the fare. Slides were shown by Messrs. Golding, Johnson, Taylor, Mattocks, Treadway, and Chang. The advantages of the Affiliation Scheme of the Photographic Society of Great Britain was further demonstrated by the loan of a splendid collection of slides, which evoked considerable applause, the flower studies of Mr. Carpenter, and the cloud effects of Mr. Dore being particularly admired, and afforded the members present a splendid standard up to which to work. Mr. Treadway presided at the lantern with marked ability. The next meeting will be on the 13th February, when a demonstration by Mr. H. M. Smith, of the Eastman Company, on enlargements, will take place.

Hackney Photographic Society.

Weekly Meeting, Tuesday, January 17th.—Mr. G. Hankins in the Chair.

The Treasurer gave a short account of the finances respecting the recent exhibition.

The Hon. Secretary showed some smokeless powder of the Magnesium Company, Battersea, which was tried in Messrs. Rudowsky's lamp. Comparatively, there was great advantage over ordinary magnesium powder, as it seemed to clear very much, Mr. Beckett observing that firemen were not necessary as they recently were at the London and Provincial. Mr. Paget was thanked for his attendance with the lamp, and was informed by Mr. Beckett that their retouching desk (electric), which he was requested by the Society to try and report on, did very materially save time, and gave a very fine stipple, which he thought advantageous.

The Hon. Sec. showed Marion's eikonogen cartridges, and the form they were sending out cartridges of hypo and theonine.

Mr. Carpenter showed Rendell's lantern slide printing frame, and a box lid with a ground glass plate in to view lantern slides through.

From the question box:—"What would be the probable exposure at *f*/8 for snow scenes?"—Mr. Grant said he would give a full exposure, and use very little pyro.—Mr. Herbert Smith held the same opinion, but said judgment was required. Mr. Dean and Mr. Gosling had recently taken some snow pictures, and had given 10 sec. *f*/32 slow plate, and reported a pretty correct result.—Mr. R. Beckett said the exposure would depend very much on the negatives.

The CHAIRMAN then called on Mr. S. J. BECKETT for his paper on "Lantern Slide Colouring," but as the evening was somewhat advanced, he was unable to deal very fully with the subject. He thought very little attention had been given generally to this interesting subject, and expressed in a concise and lucid manner the way to colour slides, choice of colours, materials, &c., after which, slides he had coloured were put through the lantern and commented on by him. Birds were frequently made of dust spots on the plates, and so helped to hide what sometimes would otherwise be a fatal defect to a good plate. Colours look to the naked eye more bright than when shown through the lantern.

CROYDON CAMERA CLUB.

Notices.

Jan. 30th.—Mr. B. Gay Wilkinson, "Slide Making by Reduction."

Feb. 13th.—Annual Meeting, and Exhibition of Holidays with Camera.

Feb. 27th.—"National Prize Slides."

NOTE.—The Hon. Sydney Herbert, M.P., and Mr. Alderman Edridge, J.P., have been appointed vice-presidents.

LEICESTER PHOTOGRAPHIC SOCIETY.

A MEETING of this Society was held in the Mayor's Parlour, Old Town Hall, on Wednesday, for the election of officers for the ensuing year; Mr. J. PORRITT, Vice-President, in the chair. After the votes of thanks had been proposed and passed to the retiring officers, the following were elected to the various offices:—President, Mr. Josh. Porritt; vice-president, Mr. A. W. Wilson; secretary, Mr. H. Pickering; treasurer, Mr. A. W. Wilson; committee, Messrs. Pierpoint, Bankart, Partridge, Joliffe, and Squire. A vote of thanks was proposed and carried to Mr. Pierpoint for his services as president during the past year.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

THE annual meeting of this Society was held at the Colonnade Hotel on January 12th, Sir J. B. STONE, F.G.S., F.R.G.S., President, in the chair.—The TREASURER reported an exceedingly gratifying condition of the finances of the Society, and drew attention to the fact that more new members had joined the Society in 1892 than in any previous year.

The PRESIDENT, in the course of his very able address, said that the Birmingham Society had made for itself a permanent place among the public bodies of the town, and a foremost place among photographic societies. He pointed out the desirability of each member having some definite object in his work, and instanced the Photo. Survey of Warwickshire. A prominent society, such as the Birmingham Photographic Society, could not, he said, shirk its responsibilities and obligations, and after explaining that through the medium of sight information was more readily conveyed than perhaps by any other means, he exhorted the Society to use to the full its power of educating those who had not the means to educate themselves, by extensive free exhibition of pictures and by widened enterprise in connection with the lantern entertainments.

The following gentlemen were elected officers and members of the Council for 1893:—President, Sir J. B. Stone, J.P., F.G.S., F.R.G.S.; vice-presidents, J. J. Button, J. T. Mousley, J. H. Pickard, W. Jones; council, F. S. Goode, A. R. Longmore, E. Underwood, A. J. Leeson, Geo. Thomason, G. E. Miller, T. Taylor, E. C. Middleton; treasurer, W. Rooke; librarian, W. S. Horton; hon. sec., James Simkins; assist hon. sec., Ernest Winn.

NOTTINGHAM MECHANICS' INSTITUTION CAMERA CLUB.

THE annual meeting was held in Room No. 71 of the Institution, on January 16th, under the presidency of Mr. R. G. HOLBROOK. There was a good attendance of members. After the election of six new members, two questions in the question-box were discussed.

The HON. SECRETARY then read his annual report (as follows):—

"The Camera Club in connection with the Institution was formed in June, 1892.

"This is now the only Photographic Society in the town, the Notts Amateur Photographic Society having closed its doors in June.

"An exhibition of photographic apparatus and appliances was held at the monthly meeting in July, Mr. Flowerdew making a good show of novelties.

"Excursions were arranged to Wollaton Hall, King's Mills, Linby, and Cromford.

"The Committee are greatly indebted to Mr. G. H. Wallis for introducing the question of 'The Photographic Survey of Nottinghamshire'; to Mr. T. Scotton (Derby) for his 'Demonstration of Platinotype Work': to Mr. H. A. Jackson for a 'Stereoscopic Exhibition'; to Mr. Guy for his illustrated lecture, 'A Trip on the Thames,' and also for his offer of a silver and bronze medal for competition amongst the Club members for the best sets of six lantern slides. The competition will take place in 1893.

"The Club Library contains Brother's 'Manual of Photography,' 'The British Journal Photographic Almanack for 1892 and 1893,' and the 'American Annual of Photography for 1893,' any of which may be obtained by the Club members to read in the library on application at the librarian's counter.

"The Committee of the Club offered for competition one prize, value 10s. 6d., for the best set of three prints in each of the following three classes:—(1) Landscape; (2) Instantaneous; (3) Artistic Combination.

"The competing exhibits were judged by Messrs. G. H. Wallis and R. L. Warham, who awarded the prize for Landscape to Mr. Fewkes; for Instantaneous to M. Hartley. For Artistic Combination, as there was only one competitor (Miss Clarke), no award was made, but a special prize was given for this class by the Hon. Sec.

"There are 39 members."

The HON. TREASURER then read his balance-sheet, which showed a balance of £3 11s. 10d. carried forward to 1893.

The following officers were elected for 1893:—President: The Duke of Newcastle. Vice-Presidents: Colonel Seely, M.P., Messrs. W. J. Abel, S. Bourne, J. A. H. Green, J. Harrison, G. H. Wallis, and C. B. Wright. Committee: Mrs. Cowen, Mrs. Fraser, Mrs. Richardson, Messrs. E. Gordon, R. G. Holbrook, R. L. Warham, and W. H. Warsop. Hon Treasurer: Mr. H. Derry. Hon. Sec.: Mr. John T. Radford, 3, Colville Villas.

The annual report was unanimously adopted, and the balance-sheet passed.

A discussion regarding the alteration of three of the rules was adjourned to the next meeting.

The next meeting will be held on February 8th, when Mr. J. Duncan Pearson will give a lantern slide demonstration.

PHOTOGRAPHIC SOCIETY OF IRELAND EXHIBITION.

WHAT has been admitted on all sides to be the most successful exhibition ever held in Dublin was opened, on the 16th inst., at the Institute of Civil Engineers, Dawson Street, Dublin, under the auspices of the Photographic Society of Ireland, and with the patronage of his Excellency the Lord Lieutenant. The opening ceremony took the form of a full-dress *conversazione* on the evening of Monday, the 16th inst., and was largely attended by the foremost representatives of science and art in Ireland. His Excellency the Lord Lieutenant and suite arrived at about nine o'clock, and, having been conducted round the room by the President, Mr. GEO. MANSFIELD, J.P., and the Council of the Society, and the various pictures having been examined and commented on, his Excellency was pleased to distribute the medals to the successful competitors as follows :—

Enlargements	Silver Medal,	Mr. Victor Smyth.
Do.	Bronze ,,	Mr. R. M. Inglis.
Views	Silver ,,	Mr. George Mansfield.
Do.	Bronze ,,	Mr. J. A. C. Ruthven.
Historical Views	Silver ,,	Mr. L. R. Strangways, M.A.
Do.	Bronze ,,	Mr. A. M. Geddis.
Lantern Slides	Silver ,,	Miss White,
Do.	Bronze ,,	Messrs. A. M. Geddis and J. White.

His Excellency was afterwards shown a number of beautiful slides by Mr. Cembrano, and during the evening several musical items, both vocal and instrumental, were rendered in excellent style. Amongst those who assisted were Mr. Campbell, Miss Ruthven, Mr. W. P. Strangways, and Rev. Canon Lang. Some sleight-of-hand experiments by Mr. Cooper completely mystified as well as amused those present.

On the following day (Tuesday) and during the week the exhibition was open day and evening, and was largely attended by the general public, the evenings, particularly, being crowded by those who came to see the excellent lantern displays provided. By special desire, and on account of the interest excited on Wednesday evening by the exhibition of Mr. Pringle's and Professor Scott's pathological slides, they were shown again on Saturday in conjunction with two half-hour displays of views. The slides which had been kindly lent by Mr. Cembrano were much admired by those who had the good fortune to witness them. Amongst the exhibits were a fine collection of lenses by Messrs. Taylor, Taylor, & Hobson ; lanterns by Mr. Lonsdale ; specimens of views and enlargements by the Autotype and Eastman Companies ; apparatus by Messrs. Robinson & Sons, Curtis, and Wayne.

Altogether the exhibition was an unqualified success, and reflected the highest credit on its promoters.

* * *

TO make glue water-proof, dissolve of gum sandarac and mastic each five and one half drachms in one half pint of alcohol, and add five and one half drachms of turpentine. Place the solution in a glue-boiler over the fire, and gradually stir into it an equal quantity of a strong, hot solution of glue and isinglass ; strain, while hot, through a cloth. Or to plain glue solution add bichromate of potash. On exposure to the air it becomes waterproof.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

WALTER S.—(1) The success of the operation does not so much depend upon an accurate formula (although this is, of course, most important) as upon careful manipulation, temperature, quality of gelatine, &c. It would cover many pages to give you the necessary information, and we must, therefore, refer you to the text-books—Abney, Pringle and Burton, &c. You would also find all you want in back numbers of the Year Book. (2) The lens used for photo-micrography is the objective of the microscope itself ; on this subject, too, much can be learnt from the above authorities. (3) Gelatine emulsion cannot be now purchased ready made, although at one time it was a marketable commodity.

J. J. BUTCHER (New York).—The lamp named is advertised by the Platinotype Company, Southampton Row, London. It is fully described in the "Year Book of Photography" recently published.

LANTERN OPERATOR.—For accurate registration of "dissolving" effects, the three or more pictures required should each be installed in a separate wooden frame. When you have tried the accuracy of the lantern stages by use of test diagrams, which may take the form of horizontal and vertical lines crossing one another and scratched on blackened glass, the pictures themselves are brought to correct registration by inserting slips of card or paper in the frames, or by shaving the wood with a finely-set plane. There is no difficulty about the matter ; but the adjustment of many slides will consume much time—and gas.

M. D.—The Serrin regulator is out of date, and is far inferior for projection purposes to the Brockie-Pell.

XERCO.—The hard sky-line may be avoided by using a folded cloth, and moving its edge two or three times during the printing operation.

J. J.—The local action in your Grove battery may be stopped by re-amalgamation of the zinc plates. Possibly your acid is too strong ; 1 to 10 of water should give you good results.

MASCOT.—A good book for your purpose is the practical treatise on "Engraving in Half-Tint," by Geymet. It was published by Gauthier-Villars et fils, at Paris, two or three years back. You will be able to get it through any foreign bookseller.

INQUIRER.—The brown powder which you find in your combined bath is undoubtedly gold, due, most probably, to some impurity in your sulphocyanide. Try another sample.

P. C.—For copying documents nothing is better than a R. R. lens ; but, if you are obliged to place the camera very near the paper, use a portable symmetrical. We need hardly point out that the exposure will be much prolonged with the latter lens.

HYDRO.—The yellowing is due to prolonged development, or you have used the same liquid for too many plates. An acid fixing-bath will probably cure the evil, but probably at the expense of permanence. It would be better to take a fresh copy.

S. A. R.—You will find great difficulty in coating your cleaned films with gelatine emulsion, for the surface will not be perfectly flat, and it will repel the liquid. The game is hardly worth the candle

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THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1796. FEBRUARY 3, 1893.

NOTES.

OUR American cousins have begun the new year with the issue of a fresh series of postage stamps, of very beautiful design. They are nearly twice the width of the old form of stamp, in order to find room for pictorial illustration. Among the designs are found the "Discovery of America by Columbus"—the first sight of land, "His Fleet at Sea," "The Landing of Columbus," &c. These subjects are copies, for the most part, of well-known paintings, and they are very beautifully engraved. From microscopic examination may be detected certain appearances which would lead to the belief that the original engravings have been of larger size, and have been reduced by photographic means.

IF it should happily become the fashion for a country to illustrate the leading events in its history by its postage stamps, as in this recent American issue, the work of the stamp collector will certainly be of greater interest and utility than it is at present.

MANY have been the attempts to take satisfactory photographs at night, and generally the light of the moon has aided in the work. One of the best pictures of the kind has recently been published in the *Photo-American*, representing a view of the City Hall, New York, on the occasion of the Columbian Celebration, when it was illuminated by numerous little lamps placed on the window sills, &c.

A SHORT time ago we gave some account of a new photogravure process, known as the photo-mezzotint. In the *American Journal of Photography* appears a plate produced by this process which would be very hard to beat. It has the appearance of a fine steel engraving, and cannot be distinguished from one until its details are examined with a powerful magnifier.

IT is impossible not to agree with Mr. Theodore Watts in the opinion expressed in his interesting articles, in the *Magazine of Art*, on the portraits of Lord Tennyson, that "Nature's idea" in Tennyson's face must be sought in the well-known photograph by Mayall. It has been too much the fashion of late to decry the power of photography to render a perfectly natural portrait; that the consciousness of the person that he is sitting for his portrait must peep out, and so on. It is, therefore, refreshing to find Mr. Watts saying emphatically that "though the sun never troubles himself about style, nor the best way in which it may be imported into a picture; and although he is often the most savage of caricaturists, he sometimes can work a miracle of truthful representation before which the highest exemplars of artistic style must bow."

AN examination of the sun pictures of great men, not mere "celebrities," reveals the fact that in almost every case they not only photograph well, but do not lose their individuality when before the camera. As with Tennyson, so with Gladstone, Carlyle, Browning, and Dickens. Possibly the contemplative, thoughtful look which goes with high mental qualities comes naturally when sitting in repose, and this is the aspect transferred by the lens to the sensitive plate. It is curious, however, to note the shortcomings in two of the photographs of Tennyson, by Rejlander and Mrs. Cameron, given by Mr. Watts. Owing to the shortness of the focus of the lens used in Rejlander's daguerreotype, the poet is made to look an undersized man, whereas, in reality, he was very tall. In Mrs. Cameron's photograph, through faulty lighting, the whole of the modelling of the forehead is destroyed; or, as Mr. Watts puts it, an egg-shaped rotundity is given which is not true to nature. But these defects are not due to photography, but to the photographer, a very different matter.

We are glad to find that the effect of the magnesium flash experiment at the London and Provincial Photographic Association was even more trivial than at first supposed. The remark current in the room that the ceiling was charred, although justified by appearances, was not so in fact. The black patch above the place where the lamp stood proved to be a mere deposit of a sooty character, and was easily and entirely removed by wiping with a cloth. The sending for the fire engines and escape had nothing to do with this particular incident, but was due to the alarm of some passers by on seeing the vivid light at a window which, from its situation in the City of London, would naturally be taken to be a warehouse.

Two lectures on photogravure, with a practical demonstration of the process, are to be given under the auspices of the "Affiliation of Photographic Societies" Committee, by Mr. Herbert Denison, at Bloomsbury Hall, Hart Street, W.C., on the 17th and 24th of this month, at eight p.m. The subject of photogravure is so little understood by the majority of photographers that Mr. Denison should attract crowded audiences.

Mr. Linley Sambourne, who has just been interviewed, frankly acknowledges his obligations to photography. He is himself a photographer, and although for the practice of the art he does not much care, he has, with his own hands, collected an abundance of photographic memoranda which at times stands him in good stead. Mr. Sambourne is nothing if not accurate in the delineation of the figure, of costume, and of inanimate objects, and he does not believe in drawing "out of his own head." Hence he finds photographs invaluable.

His collection of photographs is described as unique in respect to its variety, and it is being added to every day. The cartoonist never knows what object he may find necessary in the elaboration of pictorial metaphor, and photographs of the most unlikely objects sometimes turn out to be the most useful. In his universality the cartoonist who collects photographs is something like the inveterate bargain-hunter, Mrs. Toodles, who bought a wooden leg because she thought if her husband lost one of his it would come in so handy! He cannot afford to despise anything. We know a cartoonist who had to bring a steam roller into a political picture, and great was his difficulty. It is not everybody who can carry the details of a steam roller in his head, and the artist spent half a day roaming about London before he found one from which he could make a sketch. A photograph would, of course, have saved an immensity of trouble, and would have been more accurate into the bargain. When Mr. Sambourne conceived the idea of France being whirled into the Maelström of corruption, as he cleverly depicted a week or two ago in *Punch*, he went to his collection of photographs, and found what he wanted in a photograph of Niagara. It is not every artist who so ingenuously "shows his hand."

We have on a previous occasion asked why some one of the photographic societies does not continue the work discontinued by the Society for Photographing Old London. It was, so far as we know, never made absolutely clear why the Society was dissolved; at any rate, it can hardly be said that the few scores of photographs made exhausted the material. Attention *àpropos* of the destruction of the Sardinian Chapel, and the "Old Black Jack" public-house in Portsmouth Street, has been called to the desirability of preserving some permanent record of the old-fashioned and historical buildings of the metropolis, and the *Globe* says there are surely many amateur photographers who would freely give prints of their photographs of Old London if they knew the British Museum and other similar institutions would welcome their contributions, and make them accessible to the public.

No doubt; but where are the amateurs, apart from the members of the extinct Society, who have turned their attention to the work? There needs to be some distinct reminder—some outward and visible sign—that such interesting mementoes are preserved; specimens would then soon be forthcoming. Relics of Old London are as worthy of preservation as national portraits. When a special collection of these portraits was established, contributions came in freely enough; and, in the same way, there would be no lack of interesting photographs if the donors knew that their work would not be buried in the recesses of the British or Guildhall museums.

Another good photographer has gone over to the majority, in the person of Henry Dixon, of Albany Street, who died, in his seventy-third year, on the 20th ult. Mr. Dixon will be chiefly remembered for his splendid animal studies, taken at the Zoological Gardens nearly twenty years ago—pictures taken before the days of gelatine, but which were most perfect examples of good photography. Mr. Dixon was one of the first to adopt carbon printing, and was also to the fore with isochromatic work. His loss is deplored by a wide circle of friends.

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CURIOUS PHOTOGRAPHIC PHENOMENA AND THEIR APPLICATION TO ENGRAVING.

(*Concluded from page* 55.)

ON the 6th August, 1880, Dr. Janssen also laid the foregoing facts before the Photographic Society of France, and stated in addition that he had likewise obtained the results on collodion plates, washed and dried. He had obtained the results when taking photographs of the sun itself, and when taking views. He did not doubt that the experiments would throw much light upon the theory of photographic phenomena. Later on he amplified his statements before the same society.

In September, 1880, Captain Abney contributed a paper to the *Philosophical Magazine*, in which he laid down the principle that the presence of an oxidising agent in the film favours these reversals, and that "if a substance readily taking up oxygen be in contact with the silver salt, a reversal cannot easily be obtained." Dilute solutions of permanganate of potash, bichromate of potash, or hydroxyl, in a glass cell in which the plate is exposed, enable reversals to take place with the greatest facility. He also tried and described experiments on the reversal of different parts of the image of the spectrum by over-exposure. His experiments confirmed those of Robert Hunt with the imperfect spectra of his day, that the reversing action takes place most rapidly under the influence of the more refrangible rays of the spectrum, but Captain Abney carried the researches much farther.

Next we come to an interesting statement, unsupported by references to experimental evidence, that more reversals may be obtained than those already described, and with shorter exposures. The Photographic News of December 10th, 1880, makes some statements in a leading article to the effect that if certain conditions be fulfilled an extremely short exposure will sometimes give a reversal, as well as an extremely long one. The first condition is the absolute clearness of the plate so far as previous exposure to light is concerned, or to any other agencies which might lead to the reduction of the bromide; the second is the use of a developer with an unusually large proportion of ammonia, a moderate quantity of pyrogallol, and little or no alkaline bromide. The writer states that if such a plate be exposed about one-twentieth its normal time, it will often yield a positive instead of a negative, not always of a perfect nature, but sometimes of a hermaphrodite character, suggesting that perhaps ordinary negatives are taken by the reversed action of light. "This surmise," says the author, "bears with it visions of glory to those who delight in securing pictures of express trains, bursting shells, and such-like objects," but the plates must be prepared and worked in dark rooms which are dark indeed, and the workmanship of the camera and slides perfect. A week later the statement was made that this phenomenon accounts for a negative being sometimes found on one side of a photographic film and a positive on the other. We have been unable to find any evidence in support of these statements.

Mr. E. J. Humphery, of the Camera Club, is one of those who have experimented on the phenomena of reversals, and he read a paper on the subject before the Club towards the end of 1890. In one of his experiments he exposed an Ilford Ordinary plate under a negative for twelve seconds to direct daylight when the light was rather poor, and developed it with five parts sodium sulphite, two parts carbonate of potassium, one part eikonogen, and thirty parts water, diluted with eight times its bulk of water. A negative image then gradually made its appearance, and was fully out in fourteen minutes. By giving two minutes' exposur when the daylight was very feeble, and developing twenty-five minutes in a solution composed as already stated, he obtained a positive transparency on paper. This agrees with the third stage described by Dr. Janssen. Mr. Humphery expressed the opinion that the results would be much improved by the backing of the plates to reduce halation. A better plan probably would be to use thickly-coated plates over these long exposures.

In 1886 information was given at the Photographic Club about the regular utilisation in trade of the phenomenon of recurrent reversal. This was done by Mr. E. Frewing, of Kingston-on-Thames, who was the first to apply recurrent reversal commercially to the purposes of photo-mechanical printing. Some recent discussions have brought him once more before the public in the matter, and being doubtful whether, as had been stated, success in the operation was connected with the use of the ferrous oxalate developer, a few weeks ago he exposed two gelatino-bromide plates, one Ilford and one Britannia, applied to them the pyrogallol and carbonate of soda developer, and wrote as follows to the *British Journal of Photography* about the experiments:—"I herewith enclose you the results, with the original negative for comparison. I may say that these negatives are a fair sample of the results obtained. The exposure was eight seconds to fairly good daylight through the studio window. My opinion is that the success is in the exposure, for this reason. If you begin with a short exposure you obtain a transparency; continue the exposure, you get a negative; further expose, and you again find you have a positive, and these changes undoubtedly occur many times over. The chemical action being the same, it must be caused by some reversing action of light on the silver salt. A very good plan to observe these changes is to cut up a few plates—say, a dozen pieces; two quarter-plates, six out of each—and make one dozen exposures, beginning at one second, and each time increase as, say, 1, 3, 5, 7, 9, and so on, then develop them and see the result . . . The developing is longer than for the ordinary negative." The editor remarked about the reversed negatives sent to him, that they were "exceedingly good, it being difficult to differentiate between the original and the copies."

The commercial application of the experiments now under notice is, to obtaining negatives with the sides of the picture reversed, necessary in several engraving processes to which photography is applied. This is ordinarily done in one of three ways. The copying is usually done in the camera. Immediately in front of the lens a large glass prism is placed, and the camera pointed at a right angle to the picture to be copied. The prism brings the image on to the plate by reflection from one of its surfaces, and at the same time reverses its sides. These prisms have to be optically good, and are expensive. The second method is to put a piece of truly plane glass, silvered on its front surface, at an angle of 45 deg. in front of the lens. Getting these true surfaces is expensive, and the mirror tarnishes and gradually rubs off by use. The third method is to place the plate in the camera and with its back to the lens, so that the copying is done through the glass of the plate; an allowance is made in the focussing for the thickness of the glass. This plan tends to give less perfect definition. In getting a negative by reversal from another negative by superposition and over-exposure, no camera, lens, reflector or other adjunct than a common printing frame, is necessary. Some commercial brands of plates give better results than others in reversal.

Two or three years ago considerable attention was drawn to the experiments of Colonel Waterhouse, in which he obtained positives direct upon ordinary plates by shortening the exposure, and by modifying the developer. We know of no evidence that the phenomena differ from those already described, except that the modification of the developer enabled him to vastly diminish the exposure. At the June Conversazione of the Royal Society, in 1891, Professor Emerson Reynolds exhibited two large photographs of the head of a lady, in which the plates had been exposed for the same time, and prepared and developed in the same way, except that in the second instance he added to the eikonogen developer less than the $\frac{1}{700}$th grain of tetra-thio-carbamid-ammonium-bromide ($H_2N_2C\ S_4\ N\ Br$). The latter gave a reversed image, causing a positive to appear instead of a negative.

At a meeting of the Camera Club in June last, Professor H. E. Armstrong said that most probably reversal was due to the screening of the latent image from attack by the developer; but, as we have seen, reversal was experienced in 1842 with Daguerreotype plates, with no "contiguous sensitiser" present to be altered. He also said:—"It may be difficult to apply this explanation to the phenomena of recurrent reversal, but, with regard to these, the facts on record are at present far too few to permit of their satisfactory discussion." The facts, however, have been substantial enough in the past, for, as we have seen, in 1880 Dr. Janssen described clearly the phenomenon of recurrent reversal to the Academy of Sciences. This should be enough for Professor Armstrong. He can get such a reversal himself at a cost of a penny or twopence; it will help to make havoc of some of the theories broached at the Camera Club that evening.

Reversals are bad enough for theorists to deal with in explaining the nature of the invisible image, but a recurrent reversal increases the difficulties tenfold. Shadowed forth from the past are suggestions of even additional reversals after one exposure. Mr. H. M. Hastings and Mr. Teape have tried and not been able to get the additional reversals following a normal exposure spoken of by Mr. Frewing. The editor of the Photographic News in 1880 spoke of reversals preceding the normal exposure. We have been unable to discover any recorded experiments on this head, so must leave the whole question of more than two pictorial reversals open for the present.—*The Engineer.*

◆

SOME CONTRIBUTORIES TO ARTISTIC RESULTS.

BY A. HORSLEY HINTON.

(*Concluded from page* 61.)

Size and Artistic Effect.

CLOSELY akin to this is the notion that size has a good deal to do with artistic effect—an erroneous idea that a large picture is artistically superior to a small. Possibly some scenes are more suitably produced on a moderately large scale; but, as a general rule, I do not hesitate to say that a quarter-plate *may* be as completely (nay, often is) a work of art as your 24 × 18. Now, Mr. Chairman and gentlemen, if I had prepared for this evening, as I ought to have done, I should have submitted to you occular proof of this by exhibiting a print 3 × 4 by the side of one 30 × 40; as it is, I must put it to you that *size*—that is, measurement by inches, contributes nothing of artistic effect.

The completely successful picture is the one which, whilst giving a pleasant impression, does not make its size *felt*. A little picture may be of such a character that the spectator is not made conscious of its restricted size; the selection of subject, and the treatment of it, may convey a sense of breadth and largeness which, to my mind, is a most important characteristic.

Why adopt a Rectangular Form of Picture?

Why do we usually adopt for nearly all subjects a rectangular form for our pictures? The eye does not form a rectangular figure when looking at nature, but a vignetted ellipse. It was probably convenience in the first place which decided the matter, and then custom grew upon this, so that now we use a rectangular form because, being conventional, it attracts least attention, and the spectator is *unconscious of* the boundaries. The arrangement or composition of every picture should be such that its boundaries should not be felt to be restricting, and there should be such interest within the confining lines that the eye feels no desire to wander, and the mind no wish to inquire of what else the world was composed, or what came next in the landscape panorama. might suggest such arrangements of lines, such combinations or such dispositions of central objects, and so forth, which I have myself found to assist in this direction, but beyond this neither I nor anyone else can tell you how to make your small picture overcome its impression of littleness. It is a thing to be found of experience and observation, and to be attained as others have attained it—on the steep ladder of many failures.

A Definition of Artistic Effect.

I should not have to look very far back to find the time when it would have been necessary for me to preface such remarks as I had intended making, and have already been stumbling over, with a definition of what I meant by artistic effects; but I am seriously glad to believe that in some sense we have got beyond that necessity, and that, in a general manner at least, most of my patient audience have some idea as to what an artistic picture should be—namely, not an imitation of nature, or a copy of nature, but rather an interpretation—that is, *a general and broad representation of the impression made upon the artist's mind by the scene, and containing an expression of the sentiment or idea which it awakened.*

Before exhausting the list of factors which might be considered in the light of contributories to artistic effect, we should have to discuss: figures supplementary to a landscape scene, also cattle and the like; and we might note how and when they contributed or detracted from the well-being of the picture; also clouds and the employment of a second negative; colour, whether of the image produced or of the paper used, which may make or mar our work; position of light and the amount of it, also the relative tone of various parts; and we should hardly escape discussing the question of focus and amount of detail permissible, and you know if we started that topic to-morrow's sunrise would find us still at it, and this room bearing close resemblance to a battlefield or the sequel of an Irish wake.

"An Evil Reputation."

Has any gentleman here, I wonder, ever had an evil reputation foisted upon him which he does not deserve? Has any one who, being a man of very temperate habits, found suddenly that his neighbours have quietly agreed amongst themselves that he is much addicted to whisky drinking, and that when he goes out of an evening, professedly to a meeting of the Hackney Photographic Society, his best friends spread the report that the Hackney Photographic Society only means a wild bacchanalian revel, or a disguise for entering on a housebreaking expedition? If so, he will be able to sympathise with *me*, for somehow my photographic friends have decided amongst themselves that I believe in nothing but photographs put confusedly out of focus, printed on exceedingly rough papers, and in a reddish-brown colour fallaciously called sepia.—*Hackney Photographic Society.*

* * *

Messrs. Martin and Co., of New Southgate, have lately introduced a photographic novelty which is likely to take well with the public. It takes the form of a drawing, reduced by photography to the size of a dance programme, so that it can be mounted on the front cover of that little document. Such a design, covering a surface of about six by four inches, and drawn by one of the family, can be reproduced, and fifty reduced copies furnished in the course of twenty-four hours.

COLOURING LANTERN SLIDES.

BY S. A'BECKETT.

IT is a prevalent photographic habit to decry coloured lantern slides; indeed, it is frequently asserted in the press and at society meetings that a slide, if coloured, is spoiled. This may be true in some cases; but to prove to you that it is a desirable and necessary operation under some circumstances is my mission. Also, I am willing to give the results of my frail experience in this most useful and entertaining sub-division of photographic pastime.

Although I am not an amateur myself, these workers generally possess (if they be worthy of the name) a quality which I always admire—enthusiasm. Let us keep up our enthusiasm, for that is the only thing which will keep us going ahead as photographers and as a society. The amateur rejoices in doing a thing *himself*, and it is to the beginner and amateur that my remarks are addressed. Experienced workers—the men who look down upon us poor grovellers from their pinnacle of vast knowledge—will therefore please proceed with their pipes.

Now, it is an undeniable fact that the majority of coloured slides which one sees exhibited are unworthy of the name of pictures. The reason is not far to seek, when I tell you that the "artists" who smear the oleaginous coloured matter over the surface of the slide, in as many tints as possible, receive about five shillings per dozen slides for their work. Who, then, can wonder at the lack of talent? In support of this statement, I may mention I have had offers to colour my slides at the above price. Of course, this is first-hand price, but even then it is hardly sufficient remuneration for doing such work.

During the sunny days of the Old Polytechnic (about twenty years ago), there existed a class of artists whose work in this direction it would now be hard to rival; but these are now practically extinct. The day is passed when £2 was no unusual price to pay for a single painted slide. The present demand is at eighteenpence apiece! I only know of one lantern slide artist of the old school (and much of his work was exhibited at the Old Polytechnic). His productions are certainly the best I have seen, and are each a study in themselves. They really glow with life upon the screen. He has assured me that it is no unusual occurrence for him to work several hours each day for a fortnight *upon one slide*. Till within the last few years his pictures were drawn and painted direct on to the bare glass; now, however, he employs a weak photographic basis, and finds it a saving of labour in the way of drawing and planning out his pictures. His slides are not of the standard 3¼ in. square, but are 4½ in. square, to give more room for his work, some of which would be extremely minute if it were on the usual size slide. Every delicate detail is carefully studied, and coloured with great regard to the manner in which they will appear when greatly amplified. A small brush of fine sable hair is often used, containing less then six hairs. The slides are not made to sell (there being now practically no demand), but are used solely for illustrating his own lectures.

While the results obtained by the method I have just cited are the outcome of years of hard working, still there is no earthly reason why anyone, by the careful cultivation of a few of their artistic capabilities, should not be able to produce work far superior to, and greatly in advance of, commercial slides.

Subjects Suitable for Colouring.

All subjects are not alike suitable for colouring; statuary, for instance, is totally unsuitable. Landscapes generally are suitable, especially when water is included. Portraiture and genre should be attempted only by the advanced. Seascapes are admirable subjects—breaking waves, yacht studies, and marine pictures generally; waterfalls, torrents, and such pictures as may be made in parts of Devonshire and North Wales. Grand scenery is certainly enhanced by the *judicious* addition of colour. Pictures from the English Lake District and the Isle of Man make splendid coloured slides, but the artist should know the correct colours to use, or the results are sometimes ridiculous and unreal. Only to-day, for instance, I was looking through a coloured set of commercial slides of Norway, and I actually came across a view of a glacier painted brown! Glens and subjects with much foliage are best left alone, unless perhaps an orthochromatic plate be used, combined with a yellow screen for the production of the negative, and a full exposure be given. It is very difficult to give effect to greens, unless they are light.

Technical Class of Slide required.

Generally speaking, what is known as a "snowy" slide is best for our purpose—that is, one in which the details in the highest lights are wanting; the shadows, too, should not be heavy, or blocked up with too much density. The sky should be quite clear, and free from any reduction of the silver. Clearness in the lights must be insisted upon, or the resulting picture will have the brilliancy of the colours degraded. The colour of the image is of great importance. This should be of a black grey, such as is given by hydroquinone, ferrous oxalate, or amidol. I use a combination of hydroquinone with eikonogen and washing soda as an alkali. These developers are to be recommended also on account of the absence of fog or veiling of any kind. If amidol is used, plenty of bromide must be added. As to plates, I find the "Ilford" black tone lantern plate gives the best colour and the best surface for our work. Some plates, although giving good slides, have a tendency to a rough surface.

Kind of Colours to be used.

What is known as transparent colours must be procured. We have the choice of two kinds—oil and varnish colour. Ordinary water colours may be used, however, if mixed with a little gum arabic, but the slide must be coated with plain collodion before starting operations. I do not advise use of these. The colours I use myself, and which I consider the easiest for the beginner, are oil colours—that is, transparent colours very finely ground with oil.

Varnish colours may be made as follows. Take, say, a gill of best quality copal varnish, to this add a third of the quantity of 880° ammonia, and shake. This is your stock varnish, and should be put into a number of small bottles (say a drachm each), and the dry colour added. For use take a small quantity of colour upon the palette, and thin down as required. The finely ground dry colours may be purchased from Messrs. Winsor and Newton.

The following oil colours (which are sold in collapsible tubes) will be required: Blues—Prussian blue (a most useful and widely used colour, being very transparent and workable), indigo, and ultramarine (this may be left out of the list, being an expensive colour). Yellows—Gamboge, raw sienna, and Italian pink. The Italian pink, when mixed with either Prussian blue or indigo, makes a variety of greens. The other greens are sap green, and a new transparent green called verdigris, sold by Messrs. Reeves and Son. Reds—Crimson lake, rose madder, scarlet (Reeves's colour), brown madder (all the madders are transparent), and burnt sienna. Ivory black will also be required.

Medium and Brushes.

A medium will be required to mix with the paint before applying to the slide. I use megilp or Reeves's transparent medium, which is for the purpose, although I see but little difference between this and the ordinary megilp which artists use. A mixture of one part of gold size to three parts linseed oil (unboiled) may be used as an alternative. If gold size is used by itself, great care must be exercised in laying on the colour as speedily as possible, owing to the gold size rapidly "setting." Hence, I advise a mixture of oil with it. A few fine red sable brushes, kept exclusively for this purpose, will be wanted. No. 0, No. 1, and No. 2 are the most useful sizes, also a porcelain palette, or, as an alternative, a piece of unmatted opal glass. Failing these a clandestine excursion may be made to the domestic domains, and a "common or garden" dinner plate appropriated therefrom, turned over, and the bottom used. This often serves me for a palette. A scraper must be made (used for cleaning away the colour where clear glass is required, as a high light or cloud for instance). This may be made by cutting a small stick of wood six inches long, with a round handle, the bottom part for about 1½ inches cut flat, and wedge shape, and the end cut sideways to an angle of about 45 degrees. A needle is sometimes used for actually cutting away the film in certain places, but this is difficult with gelatine plates, although greater range is obtained and extra brilliancy secured. It is very useful sometimes for snow scenes and moonlight effects on water.

Method of applying the Colour.

It will be best, perhaps, if we presume we are about to colour a landscape having sky, trees, an old cottage, and a piece of water. Now the sky is by far the most difficult portion of the slide to properly colour. As I have previously stated, the sky should be quite clear. Always start with the sky. If it is not clear it must be locally reduced to rid it of any veil. Begin by putting a small quantity of Prussian blue on the palette (no medium will be required). Take some colour on the second finger of the right hand, and begin by dabbing this roughly over the sky until covered over with blue of the right tint. Be careful not to make your sky too dark, much better be a little light. The sky is again gone over by dabbing with the same finger, starting at the top. This must be repeated (touching lighter each time) till all decided marks of the finger begin to disappear, and it assumes an even tint. It is sometimes advised to rub down the tip of the finger on fine glass paper; this I do not advise, as it causes the skin to grow horny. The peculiar touch necessary is acquired only by practice. The sky should lighten towards the horizon. A very good effect may sometimes be introduced by working in a light tint of crimson lake or rose madder into the blue near the horizon. Clouds are put in by "wiping out" (excuse the Irishism) with a pad of chamois leather or the point of the scraper. The edges must be vignetted at the bottom into the blue. This can be accomplished either by the finger or by a badger softener, which is sometimes useful for other purposes. Great care must be exercised as to the shape and disposition of the clouds, which should be carefully studied. A word of caution is necessary against the slide painter's bugbear—dust. Painting should be done in a room free from dust, or people moving about. All palettes, brushes, wipers, and the desk must be dusted before starting. A retouching desk serves admirably for painting on. It is most annoying to find specks of dust after executing a tiresome sky. Occasionally they may be gently lifted with the point of a fine brush. I sometimes turn my specks of dust or pinholes on the sky to good account by adding life and realism to my picture by transforming them into birds. A fine brush charged with a little black medium speedily changes the annoying specks into things of life movement. Be careful not to make them all of one shape and size, but give variety and perspective by drawing some of large size, and avoid as much as possible the schoolboy's conventional type of a bird in flight. If a sky is unsatisfactory, wipe it off with a clean rag and start afresh. If varnish colour is used the sky may be flowed on.

Having finished our sky, the next operation is to wipe it out where it encroaches on objects near the horizon. The trees and grass are next covered with the necessary tints, taking care to give plenty of variety to the different shades of green. Trunks of trees may be coloured with burnt sienna or brown madder. Still water, such as a lake or river with reflections, should be done with regard to their mirror-like appearance on the screen. Indigo is a very good colour for this purpose. Ripples and high lights of reflections should be wiped out. The roof of the cottage, if of red tiles, should have a mixture of crimson lake and a little burnt sienna or scarlet and brown madder. Red, pure and simple, is a colour difficult to produce, there being no transparent colour of the exact tint. Stonework may be touched up with a little burnt sienna or other brown.

Moonlight Effects.

Subjects which have been taken with the source of light in front of the camera are suitable for moonlight effects, but a diffused light picture may be used if printed darkly. There must, however, be some patches of clear glass, or there will be lack of effect. Very little other colour than the judicious distribution of blue is required; indeed, very good effects may sometimes be made by simply staining the slide. To do this, take the slide, after well washing, soak the plate for about a minute in a solution of common iron sulphate (strength not important), then rinse under the tap, and place in, say, a 10 per cent. solution of patassium ferricyanide. It will be then found that the slide has taken a beautifully even Prussian blue stain. A safer way to do this is to stain the cover glass, which may be a plate simply fixed, washed, and stained. If a moon is required, it must be carefully cut out with the fine point of a sharp knife or a needle. If the sky is put in with oil colour there is another dodge, hardly so risky, for putting in a moon. Before starting operations, take a fairly thick solution of gum arabic, dip the end of your brush in, and allow a drop to fall on the slide where the moon is required. The size of the moon depends on the size of the drop, but do not make too large. When the gum is fairly dry lay the blue over the sky, as usual, and place in a slow oven for an hour or two. When taken out it will be found that the gum has become brittle and cracked, requiring but the slightest touch to move it off, leaving a perfectly circular clear disc and the required moon.

Drying the Slide.

This may be done, as already mentioned, in an oven, but it is hardly necessary. As a matter of fact, I do not dry my slides; they are bound up when wet, but with a sufficient thickness of mask to keep the glasses apart, otherwise the result might be sad. This also lessens the risk of catching up dust.

I might state that a slide looks too brilliant when viewed in the desk, and the colours should appear a little too crude, as this is lost, to an extent, when put through the lantern. The screen is the proper place to judge of the effect of your work—and nowhere else.

If these notes may be of any use to aid the beginner in this interesting and seasonable branch of our recreation, I shall feel amply rewarded.—*A Paper read before the Hackney Photographic Society.*

* * *

Royal Institution.—On Thursday next, February 9th, Professor Patrick Geddes will begin a course of four lectures on "The Factors of Organic Evolution"; and on Saturday week, February 18th, the Right Hon. Lord Rayleigh will begin a course of six lectures on "Sound and Vibrations."

We are informed that the National Association of Professional Photographers will hold their second annual meeting at the Grosvenor Hotel, Manchester, on Thursday, February 9th, 1893. Chair to be taken at 7 p.m. by the President for the year, Mr. Thos. Fall, of London. The Council will meet at 2 p.m. same day and at the same place. Only members whose subscriptions are paid up will be privileged to attend and take part in the proceedings. Important matters will be laid before the meeting, which it is hoped, in the interests of the profession, will be a large and influential one. Communications to be addressed to the Secretary, D. J. O'Neill, 47, Charlotte Road, Birmingham.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, FEBRUARY 3, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. II.—About Criticism.

THE photographic journals, since the first appearance, thirty-five years ago, of the one in which I am writing, have given us a vast mass of criticism, passing judgment always, except in rare instances I like to believe, honest, sometimes good, often bad, but more frequently and worse than bad—indifferent. In all these years I do not remember that the exhibiting worms have ever turned upon the heels that have trodden on them, and returned the compliment by giving their opinions of their critics. With fear I will venture to "rush in," without any hope, however, of being followed.

I don't want to make any immodest boast or claim for distinction, but I think I may truly say that I have been damned more than any other photographer, and ought to be accepted as an authority on the feelings of the condemned. On the other hand, a too kindly section of our little world have said things that have often made me blush, and wish to sink through the earth out of the way of that "satire in disguise" which Pope says is another way of looking at "praise undeserved." It curiously happens that I have had very little experience of that middle course—qualified praise or blame—which perhaps was best deserved, and which some would say was the most difficult to endure. Yet the experience I have had may be allowed to qualify me for saying a few words on criticism.

I am quite aware that many think that no special knowledge is required in a critic; that any stick is good enough to beat a dog; any intellect fine enough to judge a photograph; and even a course of chemistry a qualification for giving an opinion on serious art. So perhaps it is when the notice does not pretend to more than describe the materials and operations by which the picture was done—omitting all vital information. Here is an example of this curious form of criticism, which somehow has grown common:—"An Arab Household. Ross's R.R., *f* 16; 5 secs. April, dull, 3 p.m. Two women seated in a doorway, Bedouin costume." By some oversight the latitude and longitude, the readings of the thermometer and barometer, the age of the operator, as well as the direction of the wind, are omitted. This is information that teaches no more than any photographic child ought to know from its birth, and does no harm, but it is as far as this kind of critic ought to go. When he adds, "There is no call for the third figure, the two in the doorway would be quite sufficient," he does positive mischief, and misleads by his supposed authority. In the not entirely supposititious picture to which I refer the whole strength of the composition lies in the condemned third figure.

Yet it is possible to sink still further into the depths. I have actually seen a notice of the kind conclude with the following words:—"We think the picture (it was a poor local view) reflects credit not only on the operator who made it, but also on the plate which he used, and the apparatus." I never quote a foreign language, but here I feel compelled to exclaim, *Mon Dieu!* Neither, of course, is any special knowledge required when

> "Blind and naked ignorance
> Delivers brawling judgments, unashamed."

But for the credit of English photographic journalism we have very little of that sort of thing. Our press as a rule is free from offence, although some may say with the cynic, "We see as we have eyes to see—*and sometimes the eyesight changes with the will.*"

But I am drifting into particulars before I have done with generalities. I have my ideas touching the qualifications of a critic. I admit they are impracticable in this imperfect world, but I will give them to you. "He should know the art he criticises, yet need not be a great practitioner in that art. He should be possessed of the highest intellectual attainments, his judgment the offspring of long and acute observation, and his acquaintance with nature and human nature of that rare description that makes the verdict of its possessor unquestionable, because the position he holds is one of incalculable importance, while the responsibilities that are attached to his verdicts cannot be overrated."

How different is the reality! There is no trade, not even photography, that ignorance feels itself so competent to carry on as criticism.

I must digress into an example. At a recent provincial exhibition one of the local papers sent a young lad to exercise his 'prentice hand on a descriptive and critical review. He knew nothing of the subject, and had never seen any better photographs than local views and portraits. He was a clever boy, however, and, with the aid of everybody's opinion, made a readable article, full, of course, of ludicrous blunders. This did not much matter to the local public; but will it be believed that this article, mistakes and all, was adopted without acknowledgment, and printed as its own, by one of our photographic papers, and partly by another! Thus the guesses of an apprentice become the matured opinions of experts!

As has been finely said, "He who has never snuffed a candle with his fingers thinks himself more qualified to severely criticise the martyr who winces a little among his flames, than one who has been through the fire."

I am getting near the fire myself, as I mean to give some Hints to Critics.

In writing a criticism, let us say of a photographic exhibition, which is to be anything better than a repetition of the catalogue, there are several things to be observed. The first to keep in mind is the good of the art; yet this is the last, apparently, that the ordinary critic thinks of. The next is the reporting duty of giving your readers some idea of what is to be seen, the appearance of the room, may be a word about the hanging, and a little scolding to the naughty absentees. Then comes what may be called criticism proper, not to be lightly undertaken or without a sense of responsibility. This should partly take the form of analysis, and should tend to encourage the good, give hope to the promising, and discouragements to the hopelessly bad. This last cruel kindness, necessary sometimes for the good of the art, is a pleasing task to some writers, but a distressing one to others; it is so easy to condemn coarsely, so difficult to censure the work without hurting the feelings of the producer. Moreover, condemnation is a duty about which no mistakes should be made.

No mistakes! I am asking the impossible. Was it not Lord Beaconsfield who said, "No men are infallible, not even the young," and, now a days, on the general press, the criticisms are often given out not only to the young, but to young ladies. They often, it is true, know little of the business, but are equal to any occasion or any subject, from the fine arts to slum shelters, with the impartiality of want of knowledge. It is pretty to see them, note-book in hand, surrounding a member of an exhibition committee, trustfully taking down anything he likes to tell them. This is said to account for the remarkable unanimity of praise which has puzzled many in the reports when they appear next morning. No other kind of reporter is welcome when a society is not in a good state of health, if we may judge by recent events. To the last exhibition of the Photographic Society of Great Britain, as we all know, the *Times* sent an independent and well-qualified critic who made inquiries for himself and honestly reported what he learnt, causing a howl of despair from those who objected that anything "rotten in the State" should be known. As I have said, no critic is perfect, and this one made one mistake. He prophesied touching an event about which he was not sure. He should have left this to irresponsible frivolity. For it is dangerous to say that what ought to be will be.

But to return to our subject. The good pictures scarcely want encouraging, but may have a word of commendation, and their merits pointed out for the instruction of others. Of the critic's duties that of stimulating the promising is the most essential. The coming man should always be looked after and encouraged. The critic, however, should ever beware of the fluke which sometimes occurs in our art, and is often the one swallow that does not make a summer. In considering an artist's production, if it has any pretension to serious effort, we should try to find out his intentions—what he is aiming at. Never mind if they don't exactly agree with your own notions, although it is quite open to you to discuss whether the object was worth achieving. Try to decide if they are in *a* right if not in *the* right direction, and if any good is likely to follow. Search for beauties, and describe them for the benefit and emulation of your readers. The lowest and easiest form of criticism is that which discovers faults, or what the critic supposes to be faults. Some critics seem to forget that there may be merit in work of more styles than one; that two pictures may be infinitely apart in intention and execution, and yet of equal value as works of art; that there is one glory of the sun, another glory of the moon, and yet another glory of the stars.

Then comes a consideration of the kind of qualities to look for in a photograph or photographic picture, but space forbids. I meant to finish the subject in one paper, but critics are not so easily dismissed ; I must, therefore, have another word with them in my next.

PROGRESS IN COLLOTYPE.

ON Monday evening last a number of gentlemen assembled by invitation at the Richmond Works of Messrs. Morgan & Kidd, to inspect the extensive addition to the premises lately made to accommodate the large collotype presses which have been erected there, and to hear a description of the collotype process by Mr. Kidd. After welcoming the visitors, Mr. Kidd said :—Collotype is one of the many photo-mechanical processes now in practice, and we can confidently say that it is *one* of the best, if not *the* best of all processes where quantities are required. The collotype process is well adapted for ordinary commercial printing, such as illustrated catalogues of machinery, furniture, iron-ware, pottery, pianos, and many other branches of trade or manufacture. The process is also adapted for the production of artistic show-cards, address cards, memoranda, frontispages of music, programmes ; and specimens of many of these varied subjects are before you. Collotypes are especially adapted for superior book illustrations and for fine art publications, for reproductions of paintings, portraits, landscapes—in fact for everything where first-class illustrations possessing photographic accuracy are desired. It may be added that collotype reproductions of celebrated oil paintings or other art subjects make splendid decorations for the beautifying of our drawing-rooms, &c. I will now give you a short description of the working of this process as usually practiced.

An ordinary ¼-inch plate glass is ground on one side with the finest emery powder, after which it is thoroughly cleaned and well washed with water. When dry, it is coated with a substratum composed of beer and silicate of soda ; some prefer sugar and water instead of beer, but our experience is that beer is preferable. The beer should be slightly warmed before mixing it with the silicate of soda. Without this substratum the printing composition would not adhere to the plate glass.

After the glass is carefully coated with the substratum it is placed on a plate-rack and allowed to dry spontaneously, and, when thoroughly dry, is washed in clean water for a quarter of an hour, and then dried as before. It is now put into a drying oven in a perfectly level position, heated up to about 120° Fahrenheit, and coated with a solution of bichromated gelatine, which must be of the same temperature—viz., 120° Fahrenheit. This must be done with the greatest care, avoiding dust particles, and securing a perfect and even coating. It is now left to dry for about two hours in a uniform temperature, which should not exceed 125° Fahrenheit, care being taken to avoid draught or any irregularity of the drying, which would cause markings to appear in the printing of the plate. There are some workers who dry their plates in a temperature of 150° Fahrenheit, but our experience is that this is too high and that the results are inferior. The higher the temperature the coarser will be the reticulation or grain, and this must interfere with the delicacy of detail.

We may point out that the printing from a coarse-grain plate is much easer than from a fine-grained plate, though the results are inferior. The coarse-grained plates are more used for commercial printing, as a much greater number of prints can be pulled from such a surface ; but the finer-grained plates are adapted for high-class illustrations.

There are many formulæ, and every collotyper has his own favourite ; many have been published from time to time in the various photographic papers. A formula which will give good results with careful working is as follows :—

Medium hard gelatine	100 parts
Water (distilled)	1,000 „
Bichromate of potassium	22 „

Some workers prefer bichromate of ammonium instead of the potassium salt, in which case only 20 parts should be taken.

When the plates are thoroughly dry they are allowed to cool down gradually, and are now ready for exposure in contact with the negative, which must be a reversed one, except where the reversal of the image is of no consequence.

The negative is placed in an ordinary printing frame, the collotype plate is then brought into contact face to face with the negative under heavy pressure and exposed by day or electric light in the ordinary way. The right exposure is judged by examining the image through the back of the plate glass.

After the exposure is completed the plate is washed in clean water until all the yellow colour of the bichromate has disappeared. It is then allowed to dry spontaneously at an ordinary temperature, and when dry is ready for the power machine or hand press ; but in practice it is found advisable, if possible, to keep the plate about two or three days, the graduation and half tone being then more perfect.

After placing the plate on the bed of the printing press, it is necessary to moisten the printing surface with a solution of glycerine and water, which is generally called the etching solution. In the parts where the light has not acted the gelatine will absorb more moisture : but where the light has acted, the gelatine has to some extent hardened, and will resist this etching solution. This solution is kept on the plate about fifteen minutes, and then taken off with a sponge and blotting-paper. The plate is then inked up with a gelatine or leather roller charged with stiff, greasy ink, as in the lithographic process, and the parts where the gelatine has absorbed the etching solution now refuse to take the ink, whereas in the parts upon which the light has acted the gelatine surface will readily take it. In a word, the greasy ink is repelled in exact ratio to the amount of light which the different parts of the plate have received; hence we obtain an image in all the gradations of the original.

A considerable number of impressions can be taken off one plate, but after each print it must be inked up again, and, from time to time, a fresh application of the etching solution is needed, otherwise the plate will gradually lose its power of repelling the ink. The printing requires a great amount of skill and experience to secure the finest results.

Proceeding now to give you a practical demonstration of the process, the sequence of operations will be as follows:—

1. Grinding plates.
2. Coating plates with substratum.
3. Coating plates with gelatine composition.
4. Drying plates; explanation of drying cupboards.
5. Printing of plates.
6. Description of power and hand presses used.
7. Making ready for the printing.
8. Application of the etching solution. Explanation of the modification of different parts of the image by longer or shorter time that the etching solution remains on the plate.
9. Description of various dodges used to make the plate take or repel the ink.

These various operations were successfully demonstrated in different parts of the factory, after which a number of prints were pulled on both the hand and power machines. The company were evidently much interested in what they saw and heard, and did not separate until a late hour.

DEVELOPMENT v. EXPOSURE.

THURSDAY last was a field night at the Camera Club. The occasion was a memorable one. It was an assault in force upon the entire theory and practice of the photography of to-day. Dr. Armstrong was the self-constituted hero of the attack, and had undertaken to show that development, not exposure, is the determining factor of photographic procedure. Many a man has been spoiled by a title, and many a platform effort also: this amongst the number. If the lecturer framed this title or thesis as a serious embodiment of his own conviction and purpose in addressing his brother photographers, we can only dismiss it under the classic simile, "laboravit mons, nascitur ridiculus mus." As well might Dr. Armstrong address the professors or amateurs of physiology—which we all are—on the thesis, "That gestation is the determining factor of progeniture." We will not elaborate the parallel: it is complete as it stands; and as it stands, so falls Dr. Armstrong's title—we mean the title of his lecture—"unwept, unhonoured, and undiscussed."

But lectures, like men, often survive their titles—Disraeli, to wit; and those who knew the lecturer on the occasion in question will readily forgive him the indiscretion of titular overstatement such as we have exposed. Dr. Armstrong is, on his own confession, a novice in photographic science; he can afford to play the *enfant terrible*; and although he begins his career by chalking naughty things on the big front door of Messrs. Light, Camera, & Co., we know it is only out of his exuberant loyalty to those who live on the other, his own side of the street. Having thus "besided" (to translate from the German) the little difficulty, we have to address ourselves in all seriousness to the substance of the paper. The author's destructive efforts were considerable. Photographers generally were denounced for their rank empiricism and fetish worship of "formulæ" and "exposure." Messrs. Hurter and Driffield were specially denounced as blind leaders of the blind, as having, by their elaborate, but wholly "unimaginative," work in the relation of density of negative to "exposure," contributed to erect the comparatively harmless lunacy of the uninstructed amateur into the dangerous position of a dogmatic religion; in fact, the indictment was extended, as aforesaid, to the entire theory and practice of the photography of to-day. And now for the re-construction of the science and art according to the new light. The new light is no light. The banner of the new rebellion bears the proud device, $C = \frac{E}{R}$, with the motto, "Ohm, sweet Ohm"! These mystic quantities, C E R, constitute the all-sufficient tripod upon which rests the entire range of phenomena of matter change. The only light which the photographer has to consider is the electro*lyte*. As a matter of form, perhaps, the plate must be exposed; the electrolyte, or silver haloid, of the plate must just be tickled into activity; but the light does not in any sense make the picture, any more than the percussion cap sends the bullet to its destination. The "determining factor" is the electrolytic action set up in the developing bath. It is here that the unimaginative have groped about, wilfully shutting themselves up in the dark-room of empiricism. And with what result? The usual one—a complete inversion of the natural order. Development has been the "constant" and exposure the variable, under the control of the operator and auxiliaries such as those supplied by Hurter and Driffield, Watkins and others. Whereas the truth, now for the first time enunciated, lies in the paradox—any exposure, however slight, may be made (by intelligent development) to give any intensity of negative, however great, and *vice versa*. This, in fact, was the climax, if not the sum total, of the lecturer's pronouncement. The audience were left to apply the mystic $C = \frac{E}{R}$ according to idiosyncracy and the imaginative capacity of the individual. It is clear, of course, that a given plate must involve oceans of C's determined with indefinite E's and against a complexity of R's. "*Ars longa*," sighed one of the audience, aside, as he thought of the integration of the equations for a given medium.

After this the bathos—a developing bath of the lecturer's particular specification; nothing more than a quinol-sulphite-bromide-soda "formula," but made on the basis of "normal" relationships of the constituents.

Such was the attack which Dr. Hurter and his collaborator had to meet. Under their treatment, it is unnecessary to say that it very soon vanished into thin air, and the only question left in the minds of the audience, after the *status in quo ante* had been completely restored, was, "Why this thusness?" Why should one of our distinguished workers in science deliver an attack, very personal in character, strong only in language, barren of the necessary qualifications of an effective contribution to a scientific subject—viz., observation, measurement, and generalisation—in every respect, therefore, a "forlorn hope"?

The explanation we have already suggested. Dr. Armstrong, of course, was not serious in the first place; in the next, atomic dissociation by electrolysis has been reduced to definite and exact expression, whereas the similar effects produced by heat and light do not present an equally simple relationship of effect to cause. Dr. Armstrong, therefore, in his passionate regard for exact knowledge, is inclined to think and speak disrespectfully of the latter, to eliminate them, wherever possible, by translating them *nolens volens* into the language of Ohm's law. Thirdly, and lastly, Dr. Armstrong is impatient of an art which has attained to a remarkable elevation of precise practice, based ultimately on chemical phenomena pure and simple, of the mechanism of which there is no exact knowledge whatever. But the remedy for this condition of things is not to be found in speculation, however "genial," still less in speculation of the "lucky-bag" order. No one knows this better than Dr. Armstrong. For the present he has chosen not to know it. We firmly believe he has something up his sleeve, and we shall await with interest his next effort, which no doubt will not be an escapade.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

January 26th.—Mr. W. D. Welford in the Chair.

Mr. Lorimer read a statement from *Photographic Scraps* to the effect that gelatine prints treated with platinum solutions for toning, although they might acquire a certain colour, did not do so by a deposit of platinum in the image, but by a general deposit all over the paper, accompanied by degradation of the whites, and that no real toning or substitution took place. To controvert this statement he recounted a test that he had made of the ashes of what had been originally gelatine printing-out paper. This had been printed to the full, and then treated with platinum toning, fixed, and washed. The ash treated with aqua regia and tested gave a distinct indication of platinum.

Mr. W. E. Debenham submitted that this experiment did not prove that the statement in the publication referred to was incorrect. It was part of that statement that platinum was deposited in the paper independent of toning action. There would, therefore, be an indication of platinum in the ash in any event. If parallel experiments were made with paper that had been exposed to light and some that had not, and if in the latter case platinum was found to be absent or in much less quantity than the case of the paper that had been exposed, a point would be made.

Mr. A. Haddon said that undoubtedly Mr. Debenham was correct. The question was whether platinum had combined with the paper or had been deposited. It had been pointed out that gelatine could not properly be used for platinum printing, as a combination was formed by gelatine with platinum. This then would account for the metal found in the ash, independent of toning action. Another cause of error might arise in this way. Paper generally contained some potash, and an unsoluble compound might therefore be formed which would not pass through the filter, and so the accuracy of the test be vitiated.

Mr. Lorimer undertook to repeat the experiment with unprinted paper and bring up the result.

The Chairman said that he could not accept the statement that there was a necessary degradation of whites in platinum toned prints. He had obtained many prints of this kind quite pure in the lights.

Mr. W. E. Debenham read a paper on "Photographing Paintings by Artificial Light." He illustrated points as to angle of light by diagrams on the blackboard, and showed photographs taken under conditions described in the paper.

Mr. W. H. Barnes said that although the condenser used without a lens might give an irregular light on the subject, the use of the lens as well would, he thought, get over that.

Mr. H. Smith said that the use of lens and condenser gave a light very inferior as to equality compared with the lamp flame alone, as described by Mr. Debenham.

Mr. Barnes said that a screen might be very deep coloured, and yet not give so good colour rendering as a paler screen of the proper tint. He fully endorsed what had been said as to the superior sensitiveness of isochromatic plates for artificial light.

In acknowledging a vote of thanks, Mr. Debenham expressed a hope that some of the members who had paintings, especially if of small size, of which they desired photographs, but could not devote daytime to them, would work in the evenings, and bring up their results.

West London Photographic Society.

Meeting, January 24th.

The evening was devoted to Mr. H. N. King's paper on the "Royal Palaces of England," illustrated by over 100 lantern slides, the quality of which evoked great admiration.

Owing to the greatly increased pressure of business on the time of the hon. secretary, Mr. Bennett, he has been obliged reluctantly to resign office, and Mr. W. S. Rogers, assistant-secretary, has taken over his post, Mr. J. Stein filling the office of assistant-secretary. Mr. Rogers' address is—13 Addison Road, Bedford Park.

Bristol and West of England Photographic Association.

January 27th.—Mr. Ed. Brightman in the Chair.

Mr. Buchanan Wollaston, of the Platinotype Company, demonstrated the working of the new cold-bath process. The old paper could only be kept a few months, whil the new cold-bath paper, in proper calcium tubes, will kee for a year, and probably for another one still, as the com pany had now some kept for twenty-three months whic was perfect, being a longer time than any other printin paper. A great advantage is the wide latitude in printing out, so long as paper is not under-printed; as, even if muc over-printed, the paper is quite under control by the help o glycerine in the developer. Moreover, a good print can b obtained from a poor negative by local manipulation. complete black and white print (for copies of maps or plans is obtained by adding a few drops of oxalic acid to the stron

mal developer. Printing is carried out until the details
visible in the highest lights of a well-gradated negative,
, consequently, printing is deeper than with the old hot-
h paper. As long as any curl remains in the undeveloped
it, after removal from the calcium tube, the paper is dry.
development, with normal exposures of prints, and nor-
solution, takes thirty or forty seconds, but by adding
cerine, and diluting soultion with water, development
be made much slower if desired. However long the
it may be left in the developer, the image will not be
naged, but the acid clearing must be more thorough. No
ans of destroying the image, except *hot aqua regia,* has
been discovered, and this proves permanency. The prints
be developed by immersion, by brushing developer on,
even by one's fingers, rubbing the solution on, as touch-
any part of a print prematurely with developer leaves
traces on finish of development. With plain, strong
late developer, inky blacks and cold tones are obtained.
uting developer with two parts of water gives a warmer
e. One part of oxalate solution, one part of glycerine,
two parts of water, and brushing solution on, much
rmer tones. While the warmest colour is to be
by rubbing glycerine all over print before deve-
ing, still further diluting the oxalate-glycerine deve-
er, and using brush. To keep prints flat during
elopment, pour glycerine on to a sheet of vulcanite,
glass, rub evenly all over, place print, face upwards, on
sheet, smooth down and it will adhere firmly. Should
sky print through with a thin negative, rub the sky and
er high lights in with glycerine, brush on developer as
ual, and the whites will be pure after the clearing baths.
drochloric acid (which must be water-white and not
ommercial ") is better for clearing than citric acid, as the
ter is hard to wash out of paper. Platinotypes print three
nes as fast as albumen in summer and twice as fast in
nter. Thin negatives should be printed under pale blue
ass, and this produces bright, plucky prints. To get
lliancy, keep solution moving on print with brush, and
ot off after final washing. To secure breadth in a flat
nt, brush foreground over with strong solution, middle
tance with weaker, and far distance with weakest solution.
get soft effects from hard negatives, take one part water
d nineteen parts glycerine, paint over print, which will
sorb water, and develop as usual. In this way half-tone
be secured from a negative which has little. The
ycerine must be free from admixture with citric acid, as
netimes what chemists sell as pure contains as much as
per cent. of citric acid. The acid would wipe out the
age, just as the clearing bath would if print were put into
before development. Pictures dry a little darker than
ey appear when wet.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Programme for February, 1893.

TUESDAY, February 7th.—Lantern night.—Messrs. Middle-
n and Fowler will show their very fine series of slides of
The Severn from its Source to the Sea," in the Young
en's Christian Association Room, Needless Alley. This
ould prove a most interesting and instructive entertain-
ent.

Tuesday, February 14th.—Social evening.—Members are
minded that the social evenings offer an excellent oppor-
nity for the discussion of photographic difficulties as well
for the acquirement of assistance and advice, which will
ways be freely given.

Tuesday, February 21st.—"A Recent Visit to Egypt," by Mr. J. J. Button. Mr. Button will illustrate his remarks by a set of slides of the scenery and peoples of that part of Egypt in which he has recently been travelling.

Tuesday, February 28th.—Lantern night.—Mr. George Bankart, of Leicester, will show a series of about 200 slides illustrative of "Rambles with a Camera, chiefly in Derbyshire and Scotland." Mr. Bankart's is a name to conjure with in all matters connected with photography, and members may rely with certainty upon seeing a very beautiful series of pictures. This exhibition will be held in the Young Men's Christian Association Room, Needless Alley, at 7.30 p.m.

All the above meetings, except where specified, will be held in the Large Room, Colonnade Hotel, at 7.30 p m.

The following is a list of the officers and members of the Council elected at the annual meeting, January 12th. 1893 :—President : Sir J. B. Stone, J.P., F.G.S., F.R.G.S. Vice-Presidents : J. T. Mousley, J. J. Button, J. H. Pickard. W. Jones. Council · F. S. Goode, A. R. Longmore, A. J, Leeson, G. A. Thomason, E. C. Middleton, E. Underwood, G. E. Miller, T. Taylor. Treasurer : W. Rooke, 16, George Road, Edgbaston. Librarian : W. Silvestre Horton, 80, Francis Road, Edgbaston. Hon. Secretary : James Simkins, Brooklands, Solihull. Assistant Hon. Secretary : Ernest Winn, The Uplands, Selly Hill.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE first ordinary monthly meeting of the thirtieth session was held in the Club Rooms, Percy Buildings, Eberle Street, on Thursday, January 26th, the President, Mr. A. J. CLEWER, in the chair.

Fifteen new members were elected.

The PRESIDENT announced that a series of lectures and demonstrations had been arranged, which would take place every Thursday until the middle of April.

Two prints were exhibited by Mr. ROGERS, a member of the Association, showing the great differences obtainable from the same standpoint, following out the principles of the tele-photographic lenses.

Messrs. Ross' twin lens hand camera was exhibited and fully explained by Messrs. SHARP and HITCHMOUGH.

The prizes gained at the 1892 annual competition were presented to the successful members.

The PRESIDENT called upon Mr. C. W. HASTINGS (editor of *Hand Camera and Lantern Review*) to give his lecture, entitled "Picture Making by Photography," illustrated by lantern slides from Mr. H. P. Robinson's negatives. The lecture was listened to by a very attentive and appreciative audience, who followed the lecturer in his happy and instructive remarks, showing what could be done by photography in the hands of an artist. The beauties of the different slides were pointed out and special reference made to the happy posing of suitable figures, and how a series of beautiful subjects could be obtained out of ordinary material.

TUNBRIDGE WELLS AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE sixth annual meeting was held on the 26th ult. Mr. E. R. ASHTON in the chair.

The HON. TREASURER presented the accounts, and the HON. SECRETARY read his report for the year, both of which were satisfactory. The following gentlemen were elected officers for the ensuing year :—President, Mr. F. G. Smart ; vice-presidents, Rev. A. T. Scott, Messrs. E. R. Ashton and G. Lewis ; hon. treasurer, B. Whitrow ; hon. secretary, Joseph Chamberlain ; hon. auditor, W. E. Brampton ; committee, Messrs. J. W. Morgan, A. W. Pierson, and E. Catch-pole. The Chairman then said he had a pleasant duty to perform. They were all agreed that the time had arrived when they should recognise the valuable services the hon. secretary, Mr. Joseph Chamberlain, had rendered the Association, and he had much pleasure in handing him a gold watch, on behalf of the members, as a mark of esteem for the indefatigable way he had carried out the arduous duties of that office.

The Hon. Secretary said he wished to thank them all for their handsome present, and for all the kind things the Chairman had been good enough to say about him. He was very proud to feel that anything he had done for the Association should meet with such unanimous approbation. The watch in years to come would remind him of the kindness and consideration he had met with from all the members, and he thought there were few societies so fortunate in having a patron like Sir David Salomons, and a president like Mr. F. G. Smart, who took so much interest in the actual working of the Association, and which was one of the main secrets of its success, coupled with the great cordiality that existed between himself and the other officers, to whom he tendered his best thanks for their kind co-operation in the work which had been carried out, and he again thanked them for their kind present, which he should always value.

It was a gold keyless watch, and had a B. Kew certificate, having the recipient's monogram on the back, and on the dome was engraved, "Presented to Joseph Chamberlain, by the members of the Tunbridge Wells Amateur Photographic Association, in recognition of valuable services as Hon. Secretary, 1893." Letters had been received from Sir David Salomons regretting his inability to be present, and from the President, and all regretted the cause of his absence, and wished him a speedy recovery to convalescence. A vote of thanks to the Chairman closed a very interesting meeting.

Bath Photographic Society.

An ordinary meeting was held at the Royal Literary and Scientific Institution, on Wednesday, the 25th ult., Mr. Austin King, President, in the chair.

The Chairman, in making announcements, said he hoped all would endeavour to be present on the evening of February 17th, when the Society filled the lecture programme of the Literary and Philosophical Association. He also referred to the appointment of two sub-committees, one under the chairmanship of Mr. Pumphrey, to draw up a scheme for a photographic survey of the district, and the other to confer with the other Technical Education Committee, with a view to widen the knowledge of photography. The outcome of each section would in due course be placed before the Society.

Messrs. E. J. Appleby and J. A. Howe were unanimously appointed auditors of the accounts.

Mr. W. Pumphrey then gave an illustrated lecture on the Channel Islands. By way of preface, he said his photographic slides were all reduced in the camera (wet collodion) from half-plate gelatine films; only by the means adopted he thought it possible to secure some of the pictures to be shown. He then proceeded in his well-known felicitous style to display and explain a number of pictures representing views on four of the principal islands, some of which were obtained with difficulty and some personal risk. The lecture, which was of a thoroughly interesting character, was listened to attentively, and at its termination the Chairman cordially thanked Mr. Pumphrey, who he said was ever ready to help the Society.

CORRESPONDENCE.

CHICAGO EXHIBITION.

Sir,—As a good many inquiries have been made as to the regulations under which photographs can be taken of the grounds and buildings of the Chicago Exhibition, I should be much obliged to you if you would give publicity to the enclosed communication, which has been furnished me by the Chief of the Foreign Affairs Department of the Exhibition.—Yours faithfully, H. T. Wood, Secretary.

Society of Arts, John Street, Adelphi, London, W.C., January 30th, 1893.

[Copy.]

World's Columbian Exposition,
Department of Foreign Affairs,
Walker Fearn, Chief.
Chicago, U.S.A., January 14, 1893.

Sir Henry Trueman Wood,
Royal Commissioner of Great Britain
for the World's Columbian Exposition.

Dear Sir Henry,—Replying to your letter of November 23rd, receipt of which was acknowledged December 12th, I have now to enclose a copy of a communication, dated January 11th, which I have just received from the Secretary of the Ways and Means Committee, and which gives the information you desire.—Yours faithfully,

(Signed) Walker Fearn.

Office of the Ways and Means Committee.
(R.) Chicago, January 11, 1893.

To the Honoured Walker Fearn,
Chief, Foreign Affairs.

Dear Sir,—In reply to your communication of December 12th, will say that same has been considered by the Ways and Means Committee, and I am instructed to inform you that at present no one is permitted upon the grounds to take photographs except the official photographer of the Exposition, and such persons as may care to use hand cameras which are fitted with single lens and take pictures upon a plate not to exceed 4 in. by 5 in., and provided that they shall pay to the Exposition the sum of 2 dols. per day for said privileges.

The Exposition proposes to operate under this organisation until the 1st of May, and it is not likely that it may be continued during the Exposition.

The Official Photographer will be very glad to take pictures of such views as he may be requested by outside parties. These parties, of course, to pay for same at uniform rates which have been established.—Very respectfully,

(Signed) S. A. Crawford, Secretary.

EXHIBITION RULES.

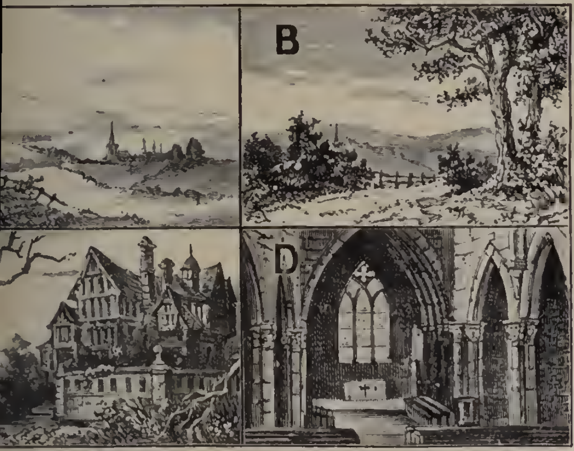
Sir,—That much need exists for reform in the rules of photographic exhibitions has been conclusively demonstrated by recent events and discussions. Photographers of all schools are agreed that the system of "classes," and the separation of amateurs and professionals, are undesirable and unnecessary. Yet each new prospectus that comes to hand shows the same antiquated arrangements are still adhered to; only one exception has come under my notice, and that is the Fillebrook Athenæum Exhibition, with which I have the honour of being connected. Though we are, so to speak, pioneers in this direction, I am convinced that it will not be long before others follow our example. The encouraging letters which have come to us from well-known workers, and the numerous applications for entry-forms, w that the modern rules meet with general approval, and us to expect a most successful show. This being the , one is inclined to wonder why other exhibition comtees have not adopted similar conditions. It would ainly be interesting to know the reasons for their ctance to relinquish the old traditions.

eytonstone, Essex. JOSEPH W. SPURGEON.

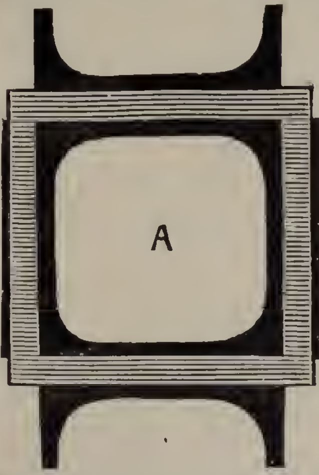
APPARATUS.

A NEW GUIDE TO EXPOSURE.

MESSRS. ELLIOTT & SON, of Barnet, have hit upon ery neat method of initiating their amateur customers o the mysteries of exposure. This is really a most selfish action on their part, they being plate-makers— they have taken the most effective means for reducing number of spoilt plates to a minimum. With each cket of their well-known "Barnet" plates is now issued ard, which bears four pictures, A, B, C, and D (see Fig. 1), each typical of a certain class of subject. Accompanying these pictures are tables, which we print below, by means of which the necessary exposure for any subject with a given stop is quickly arrived at. These tables explain themselves so clearly that further comment is unnecessary.



THE manipulations necessary in binding a lantern-slide are generally distasteful to the amateur worker, and he is often very clumsy in carrying them out. Recognising this fact, Mr. Tylar, of Birmingham, has, with his usual ingenuity, introduced a new form of gummed lantern-slide binder, by which the operation is greatly simplified.



The form of the binder, which is stamped out of black gummed paper, is shown in the above illustration, and the directions for using it are as follows:—"Place the binder flat upon a table, with the gummed side uppermost Having the lantern-slide with its mask and cover-glass ready, damp the gum on the binder with a sponge or brush, and then place the slide upon it, making the corners of the picture coincide with the cut-out corners of the binder. Hold the picture down firmly while first the pointed corners are turned up and over it, and rubbed into contact with the glass with thumb-nail or burnisher, and next turn the two sides over the pointed corners. Reverse the slide, and give the binder a final rub, and see that it adheres well to the glass." If the user will follow these directions, he will be able to bind his slides without difficulty, and with great speed.

TABLE No. 1.

Showing approximate exposure for any given time of day and year for 'BARNET' ORDINARY PLATES, with STOP F. 32, in BRIGHT SUNLIGHT.

To find exposure for any other size of stop, see TABLE 2 on other side.

A—Distant view *without* dark objects in foreground—see Illustration on other side.
B— Ditto WITH HEAVY FOLIAGE or dark objects in foreground—ditto.
C—Near Architectural subjects, or portraits out of doors ditto.
D—Well-lighted Interiors or portraits in ordinary rooms ditto.

rn. fter.	6 o'clock 6 ,,				7 o'clock 5 ,,				8 o'clock 4 ,,				9 o'clock 3 ,,				10 o'clock 2 ,,				11 o'clock to 1 ,,				
	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	
an	...	...	...	...	...	...	...	...	...	...	...	...	3	6	12	...	1½	3	6	25	1	2	4	10	Jan
eb	...	...	...	...	...	...	...	...	3	6	12	...	1¾	3½	7	25	1¼	2½	5	15	¾	1½	3	6	Feb
ar	...	...	...	...	2½	5	10	...	1¼	2½	5	25	¾	1½	3	10	⅝	1¼	2½	5	½	1	2	2½	Mar
pr	2½	5	10	...	1¼	2½	5	25	¾	1½	3	10	½	1	2	5	⅜	¾	1½	2½	⅜	¾	1½	1½	Apr
ay	1½	3	6	25	1	1½	3	9	½	1	2	4	⅜	¾	1½	2½	¼	½	1	1¼	¼	½	1	1	May
ıne	1	2	4	15	⅝	1¼	2½	6	½	1	2	2	⅜	¾	1½	1½	¼	½	1	1	¼	½	1	1	June
ıly	1¼	2½	5	25	¾	1½	3	9	½	1	2	5	⅜	¾	1½	2	¼	½	1	1¼	¼	½	1	1	July
ug	2½	5	10	...	1¼	2½	5	25	⅞	1¾	3½	12	⅝	1¼	2½	5	⅜	¾	1½	2½	⅜	¾	1½	2	Aug
ept	...	...	...	...	2½	5	10	...	1¼	2½	5	30	1⅛	2¼	4½	15	¾	1½	3	8	⅝	1¼	2½	4	Sept
ct	...	...	...	...	...	...	...	...	2½	5	10	...	2	4	8	30	1	2	4	20	1	2	4	8	Oct
ov	...	...	...	...	...	...	...	...	...	...	...	...	3	6	12	...	1¾	3½	7	30	1¼	2½	5	12	Nov
ec	...	...	...	...	...	...	...	...	...	...	...	...	4	8	16	...	2¼	4½	9		1½	2¾	5½	15	Dec

SUN OBSCURED, give double these exposures; DULL, 3 times; VERY DULL 4 to 6 times. Figures in columns A, B, & C, denote SECONDS. Figures in column D denotes MINUTES.

TABLE No. 2.

Showing *comparative* exposures for any size Stop.

The exposures in preceding Tables being calculated for medium size Stop F. 32.

F/[illegible]	F/8	F/11	F/22	F/32	F/44	F/64
1/128	1/64	1/32	1/16	⅛	¼	½
1/64	1/32	1/16	⅛	¼	½	1
1/32	1/16	⅛	¼	½	1	2
1/20	1/10	⅕	⅜	¾	1½	3
1/16	⅛	¼	½	1	2	4
1/13	⅙	⅓	⅝	1¼	2½	5
1/10	⅕	⅜	¾	1½	3	6
1/9	¼	½	⅞	1¾	3½	7
⅛	¼	½	1	2	4	8
1/7	¼	½	1⅛	2¼	4½	9
⅙	⅓	⅝	1¼	2½	5	10
⅙	⅓	¾	1½	2¾	5½	11
⅕	⅜	¾	1½	3	6	12
¼	½	⅞	1¾	3½	7	14
¼	½	1	2	4	8	16
⅓	½	1⅛	2¼	4½	9	18
⅓	⅝	1¼	2½	5	10	20
⅜	¾	1½	3	6	12	24
½	⅞	1¾	3½	7	14	28
½	1	2	4	8	16	32
½	1⅛	2¼	4½	9	18	36
⅝	1¼	2½	5	10	20	40

DIRECTIONS.—Compare subject to be photographed with above illustration, note time of day and month, refer to TABLE 1 on other side, under group of columns headed with corresponding time of day, follow down the column headed with the letter on illustration similar to view, until the line marked with required month is reached, when the approximate exposure will be found.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

963. EDWARD HOOKER, 166, Fleet Street, London, "Improved means for Colouring and Tinting Photographic Prints."—*January 16th*, 1893.

989. FREDERICK THOMAS PARSONS, 102, Fortess Road, Kentish Town, London, "Improvements in Regard to Washing and Draining Racks, for Photographic and other purposes."—*January 17th*, 1893.

1,000. HARRY GAMWELL and CHARLES GAMWELL, 37, Wavertree Road, Edge Hill, Liverpool, "A Photographic Hand Camera."—*January 17th*, 1893.

1,151. GEORGE IVE SPALDING and RICHARD LEONARD HAWKINS, 53, Chancery Lane, London, "An Improved Photographic Camera."—*January 18th*, 1893.

1192. HARRY KNEEBONE TOMKINS, 40, Alexander Road, Gipsy Hill, London, "Improvements in the Production of Photographic Images."—*January 19th*, 1893.

1,195. WILLIAM HENRY DUGARD and GEORGE HEATON DUGARD, 7, Staple Inn, London, "Improvements in Grooved Metallic Strips for Boxes for carrying and storing or packing Photographic Plates and other plates, and for other like purposes; and in the Method of and Tools for making the said grooved metallic strips."—*January 19th*, 1893.

Specifications Published.

391. *February 3rd*, 1892.—"Photographic Apparatus." E. SLEDGE, 46, Rural Vale, Northfleet, Kent.

An opening is made in the end of the dark slide, to which an attachment, called a receiver, is securely fastened. Said receiver is constructed with its sides curved outwards, so that a bag containing spare plates may be readily attached thereto in any convenient manner. The curved mouth of the receiver will also facilitate the admission of plates into the dark slide. To exclude all light a sliding-piece is provided, which slides in grooves and covers the opening in the dark slide when pushed in place. When it is desired to pass a plate through said opening the sliding-piece is withdrawn by means of a pin.

A plate carrier may be used in connection with the bag, having grooved sides for holding the plates and preventing them from injury, also for convenience in changing the plates. The carrier is made with its sides separate from one another, but attached to the inside of the bag, and suitable clasps or fastenings are provided for securing the sides rigidly together when desired. The receiver, sliding-piece, and plate carrier may be made of any suitable material, and the bag is preferably made of waterproof cloth.

3,226. *February 19th*, 1892.—"Lock for Camera Stands." A. BIRNIE, 118, Perth Road, Dundee.

The lock consists of a cross-bar in combination with, or part of, a bent spring of suitable design, the whole fixed to one section of the leg of the tripod stand. On the other and adjacent section of the leg is fixed a cross-bar with a recess for receiving the releasing knob of the spring when the two parts of the leg are unfolded—that is to say, placed in line; the remainder of the spring, when it has passed the recess, springing out and catching the said cross-bar.

Printed copies of the full specifications of the above patents may be had by forwarding 1s., for cost of each copy and postage, to Messrs. Herbert, Haddan, & Co.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

W. DUFF & Co.—The address you ask for is Daguerre Works, Spencer Street, Birmingham.

J. A. C.—You will find the information in the current Year Book. It is too long to quote here.

F. OXALATE.—Precipitation of ferrous oxalate in your developer is due either to a non-saturated solution of potassium oxalate, or to too great an addition of iron. The potassium oxalate will dissolve a certain amount of the iron, and no more.

WILL SCARLET.—The red colour on the negative sent is due, we believe, to intensification with Schlippe's salt. This is brought about by first bleaching the negative with mercury, and then treating with a 10 per cent. solution of the salt in question. The solution will keep well if a little ammonia be added, but the scarlet colour will then give way to a red brown.

M. A.—We should use, by preference, for reversal a film negative. You can reverse by putting the glass side of this plate next the lens, but the image is in that case so buried under the gelatine that development becomes difficult. If you are so wedded to plates that you will not look at a film, use one, and strip off the picture when finished. Collotype workers invariably adopt this method in dealing with ordinary negatives.

HARRY.—The metabisulphite employed in such large quantities acts as a powerful restrainer; hence your difficulty. Reduce it to one-fourth of that of the quinone, and you will find an immediate difference in the behaviour of the mixture. That quantity is quite sufficient to preserve it.

GAEDICKE LAMP.—This lamp consists of a bunsen burner, in the flame of which a ring of asbestos damped with a sodium salt is suspended. Messrs. Marion were the agents for it in this country, and will be able to tell you more about it.

CALCIUM (Derby).—You can soften hard water by the addition of lime water (Clarke's process, as it is called). You will want a precipitating tank. Details are to be found in most chemical treatises.

ARTIST.—A little book on line drawing is published by Winsor & Newton, which will give you the desired information. We regret that we cannot afford space to do so in the limits of this column.

PUZZLED.—If you examine the print with a magnifying glass you can easily tell which process it has been produced by.

P. A.—Your surmise is quite correct.

PATENT OFFICE

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1797. FEBRUARY 10, 1893.

NOTES.

We are requested to inform our readers that the annual dinner of the Photographic Society of Great Britain will be held, at 6.30 p.m., on Monday next, the 13th inst., at the Café Royal, Regent Street, when Captain Abney will preside. Tickets, 6s. each, can be obtained from Mr. W. England, 7, St. James's Square, Notting Hill; or from the Assistant Secretary. The annual meeting of the Society will be held at the Rooms, in Great Russell Street, on the following evening, at 8 p.m.

MESSRS. SCHWARZ & Co., of Dashwood House, Old Broad Street, tell us that they are now the sole agents for Dr. M. Andressen's developers—namely, eikonogen, rodinal, and diamidophenol.

MR. C. W. FAULKNER informs us that, in accordance with certain terms in the agreement which dissolves the partnership hitherto existing between himself and Mr. Hildesheimer, he is carrying on business at his old address, 41, Jewin Street, under the style of C. W. Faulkner & Co. He has taken over the stock of birthday cards, studies, Christmas and New Year cards, &c., the artistic excellence of which is so well known to our readers.

FLASH-LIGHT photography was never put to a better use than in the production of a number of pictures by Mr. F. D. Palmer, which were published in a recent issue of the *Scientific American*. These pictures illustrate the fracture and the temporary repair of the propeller shaft of the Cunard steamer *Umbria*, after her breakdown and subsequent arrival in New York Harbour. The pictures are very good, considering that they were taken amid the dark and narrow spaces in the lower depths of the great vessel.

BY the way, how few of us realise the enormous size of these "greyhounds of the ocean." The *Umbria*, for instance, has a total length of 520 feet. We can hardly appreciate what this means, unless we compare it with something with which we are familiar—Westminster Abbey will do in this case; but it falls short of the length of the *Umbria* by 137 feet.

THE museum of the Secret Service Department of the United States Treasury has recently been enriched with some beautiful specimens of photography in the shape of negatives and zinc etchings for the manufacture of spurious notes. In the case of one of these, it is said that the reproduction is so perfect, and the work so finely executed, that it is next to impossible to tell the false note from a true one. Luckily, the Secret Service Department is so well organised that the photographic counterfeiter was arrested before he had had time to put more than two notes into circulation.

THE Exhibition of the Louth (Lincolnshire) and District Photographic Society has again scored a success, as we believed it would do. The contributors to it included some of our best workers, and large attendances marked its progress. In declaring the Exhibition open, the Mayor said that he believed it to be the best that had hitherto been held in Louth, and that possibly it might be succeeded by even better ones in years to come.

A GREAT many would-be workers of the beautiful carbon process have, doubtless, been restrained from any attempt to try their 'prentice hands at it, from the difficulty of obtaining small quantities of the necessary "tissue." Messrs. Elliott & Sons, of Barnet, have removed this difficulty by issuing sensitised carbon tissue in sample packets at the low price of one shilling each. One may thus purchase twenty-eight pieces of quarter-plate size, fourteen pieces of half-plate size, eight pieces of whole-plate, or four pieces measuring 12 by 10. This innovation should give a decided spurt to working in carbon.

The Camera Club notices for the present month include, as usual, some interesting items. Next Thursday, Mr. Frank Haes will describe a walk through the town of Hildesheim, illustrated by lantern slides; on the following Thursday, Mr. Andrew Pringle will describe "the routine of gelatine-emulsion making"; and on Monday, the 27th, Mr. Wollaston will give a demonstration of platinotype development.

Some information respecting the supply of platinum has been published in one of the Australian mining papers, which goes to show that the industry is virtually a monopoly, and conducted on very much the same lines as govern the Whitstable oyster fishery. In other words, the supply is based upon the market price. To quote the paper in question :—"The market price is almost wholly decided in London, where the bulk of the raw metal goes. If the rate sinks below a certain standard, the production is at once lessened." The tremendous rise in values which commenced some two years ago was due to a "corner," which, owing to the limited sources of supply, was worked without much difficulty. How hardly this rise in price affected the platinotype worker need not be pointed out.

Nor is there much hope of a reduction. The demand has so increased that the production of platinum in the Ural, which is practically that of the world, was last year more by 30 per cent. on the yield of the previous year. The exact figures were 136,220 oz. troy, the whole of the ore being raised from private mines, the owners of which pay a royalty in kind to the Russian Government. Until platinum in quantity is obtained from some other quarter of the world, present prices must be maintained, and, perhaps, increased.

Photography is gradually making itself indispensable to medical science. The latest advance is the fitting up of a photographic studio at the Royal College of Surgeons, Lincolns' Inn Fields, where members can now have interesting cases photographed free of charge. It is curious that photographic facilities are not provided at all the hospitals. So far as we know, St. Bartholomew's is the only London hospital where there is a photographic studio, but this was three or four years ago, and other hospitals may since then have followed the example of St. Bartholomew's. Some time ago a new departure in medical journalism was made in the direction of a paper illustrated almost entirely with reproductions from photographs. Unfortunately, although the journal was admirably produced, it did not succeed in establishing itself. Perhaps it was before its time.

The collection of photographs in the possession of the Royal Astronomical Society is a very large and valuable one. The Council contemplate their reproduction, and some specimens by the Woodburytype Company were exhibited at the last meeting of the Society. The multiplication of these photographs will add to their use, as it is obvious greater facilities for study will be thus afforded.

Apropos of the Astronomical Society, some discussion has been going on as to the first comet discovered by photography. Mr. Barnard, of the Lick Observatory, some months ago, in photographing the Milky Way, discovered a comet on the plate not visible through the telescope, and it was believed that this was the first instance of the kind. When the matter was brought before the Society, Mr. Ranyard said that the comets visible during the eclipses of 1871 and 1882 were both discovered by photography, whereupon Mr. Barnard wrote to say that he doubted whether the object seen in 1871 was really a comet, and as for the comet of 1882, he understood it had been seen by many persons near to the corona before it was discovered on the photographic plate. Mr. Ranyard, as one of the observers of 1882, replies to this that, though he was looking at the corona, he did not see the comet until he saw it on the photograph, and that this was the case with most of the party. As to the 1871 comet, he had very little doubt that what he saw was a comet; and as Mr. Ranyard's opinion was endorsed by Mr. Wesley, a member of the Society, who was also present, the honour of thus discovering a comet by means of photography would seem to rest with England.

Essence of cloves has for a long time been used by chemists and others as an antiseptic, and photographers are not unacquainted with its virtues in preserving paste, &c., from putrefaction. According to a French chemist, cinnamon is even more potent in its effects. He says, "No living germ of disease can resist the antiseptic power of essence of cinnamon for more than a few hours," and that it will destroy microbes as effectually as will corrosive sublimate.

PHOTOGRAPHING PAINTINGS BY ARTIFICIAL LIGHT.

BY W. E. DEBENHAM.

In photographing paintings by artificial as by any other light, some of the things most important to be observed are the avoidance of reflections which would dim the shadows, and, so far as possible, to avoid bringing into prominence the irregularities of surface of the picture. The general principles of lighting the subject to be copied, and particularly that of the angle at which light should fall upon the picture, in order to escape interferences from both the causes mentioned, have been dealt with in a paper, "Avoiding Reflections and Granularity in Copying,"[*] read before this Society in 1884, and published in the journals of December 19th in that year. There are some points, however, in connection with artificial lighting that should be particularly noticed.

When photographing a picture of moderate size by daylight in a studio of fair dimensions, the difference of angle at which the various portions of the picture receive the light falling upon them need not be great. With artificial illumination it will often be thought desirable to economise the light by bringing it near the picture, and then the various parts will receive the light at very different angles; so much so, that it may be difficult or impossible to so arrange it that some part shall not suffer from either reflections or a lighting up of the prominences caused by irregularities of surface. With oil paintings particularly, there is a great liability to the reflection from the side of each irregular elevation of surface that is inclined towards the source of light, and which has been mentioned in the former paper as the blankety texture sometimes seen near the top of a copy, or along the edge which is nearest the light. It was pointed out that reflection occurs when the angle of incidence of light falling on any part of a picture having a glossy surface, is such that the returning angle will fall upon the lens. It was shown also that the angle must not be taken merely from the general surface of the picture, but from the inclined surfaces of the irregularities existing upon it, and that this consideration involves having the source of light at a greater angle from the axis of the lens than would otherwise be necessary.

When working with the light near any but a very small picture, two kinds of difficulty arise. In the first place, as the light must not be close to the lens, on account of the reflections that would be introduced, but must come from a considerable angular distance, it is obvious that the part of the picture nearest the light will receive more illumination than the opposite side. This difficulty may be minimised where the direction of light will not interfere with the painter's intention, by a second light from the opposite side. Another difficulty, however, is, that with a near source of light, the angle at which it falls is very different at different parts of the picture, so that, if we get a sufficient angle at the side nearest the light, the illumination will fall very obliquely indeed upon the opposite side. All this points to the desirability of having the source of light as far removed from the picture as is reasonably practicable. The two considerations which will permit of a nearer approach of the light are, first, a small size of picture to be copied, and, secondly, though not to so great an extent, a greater distance of the lens from the subject. This end is secured by using a lens of long focus compared with the size of plate, and this is also desirable for another reason—*i.e.*, that the image will be in a flatter field, and so much stopping down will not be necessary. The main objection to a distant source of artificial light is the length of exposure that would, with some illuminants and in some subjects, be necessary, and hence, no doubt, compromise will frequently be tolerated.

The necessity for placing the light near the picture and the difficulty arising therefrom only come into play (except for limitation of space where no large room is available) when the photographic activity of the light is low. Where the electric arc is obtainable, the difficulty ceases, and on various accounts with such a light available I should prefer to instal a copying establishment with that, rather than with daylight, especially in London, where we are so much dependent upon weather and season. Magnesium light is also good if a chimney can be fitted to carry off the fumes. With any artificial light (except the magnesium flash) it is easy to interpose a glass to intercept the rays that should be cut off by the yellow screen in orthochromatic work, a plan which obviates any optical interference with the working of the lens, and does not necessitate specially optically ground glass of the colour required.

A source of light everywhere obtainable, and one which will suit most amateurs, and be quite sufficient for copies from small paintings, especially water colours and such oil paintings as have not much yellowed by time, is that given by paraffin or gaslight. Light of this character may be used without a coloured screen, and gives about the same result as the use of a moderate yellow screen in the lens with daylight illumination.

I have here a few photographs illustrating the copying of paintings by a paraffin illumination as compared with daylight. The light used was the lamp from an ordinary three-wick lantern of the sciopticon kind. The condenser was removed on account of the image of the flame which it gives. The distance from the flame to the picture was about forty inches. The lamp was first placed nearly in the line of the camera, and gradually removed to one side, until the reflection first visible on the side nearest the lamp had disappeared. The photographs A to G, representing a female head and a quantity of flowers, are copied from a print in colours, fairly representing a water-colour drawing in photographic power, whilst those marked M and onwards are from an oil painting about twenty years old, and pretty well mellowed in tone.

The plates used were of an ordinary commercial make, and for the orthochromatic series Ilford isochromatics of the instantaneous brand. The lens used was one of Suter's extra rapid aplanatics, full aperture, equal to No. 2 on the universal system for exposures.

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[*] The *British Journal of Photography*, vol. 31, p. 808; Photographic News, vol. 28, p. 804.

The exposures given were, for the female head and flower subject, three seconds by daylight for both kinds of plates, sixty seconds for ordinary plate and yellow screen, and twelve seconds for the orthochromatic plate and yellow screen. For paraffin illumination the exposures were: ordinary plate, four minutes; ditto, with yellow screen, one hour; for the orthochromatic plates, thirty seconds sufficed without the screen, and four minutes with it.

For more ready comparison of the results, I have put them into a tabular form :—

	Exposures.	
	Representation of water-colour drawing.	Oil painting somewhat mellowed.
Daylight—		
Ortho. plate	3 seconds	20 seconds.
Ordinary plate	3 ,,	20 ,,
Ortho. plate with yellow screen	12 ,,	80 ,,
Ordinary ,, ,, ,,	1 minute	6 minutes.
Lamplight—		
Ortho. plate	30 seconds	30 ,,
Ordinary plate	4 minutes	4 hours.
Ortho. plate with yellow screen	2 ,,	30 minutes.
Ordinary ,, ,, ,,	1 hour.	

The same screen was used for day and lamp light, but in the latter case it was placed in front of the lamp; and, with daylight, in front of the lens. The use of colour-sensitive plates is very strongly indicated for lamplight exposure on account of their much greater rapidity in that case, as well as for truer rendering of the blues and yellows.

An advantage of lamplight (even with an ordinary plate) over daylight, unless a deeply tinted screen is used, is seen in the clearness and brightness of the copies of the oil painting. In the daylight reproductions (without screen) the whole surface seems to be covered by a mistiness which is almost absent in the lamplight copies. The explanation is that the colours of the painting have been so yellowed by time that their photographic effect is very much less than their effect on the eye. The reflections from the surface of the picture are not affected by this yellowness, and, being disproportionately strong, disguise in the photograph the work of the painter. It is on this account that it has been justly observed that the orthochromatic methods (by which expression coloured light and coloured screens are included as well as specially sensitised plates), the cracks and surface disfigurements of old pictures, so very evident in reproductions by other means, are now no longer so obtrusive.

The figures given in the table must be taken as representing the exposures actually given, which were only approximately correct. The ordinary plates exposed to lamplight would, in several cases, have been the better for even a more lengthy exposure than was given.

When a "lantern" lamp is not at hand, ordinary paraffin lamps may be used. Two of the larger kind of tin-back lamps, placed one a little higher and behind the other, may be used on one side (generally the left), and one on the other side. With a smooth-surfaced water-colour or fresh painting very fair results may be obtained in this way.

I have not thought it desirable to go into the question of many sources of illumination. The general principle is the same, but, with such lights as magnesium or the electric arc, yellow screens will have to be used as with daylight; but conveniently between the illuminant and the picture, instead of in the lens. Reflectors or weaker lights may also be used on one side, or below the picture, if without them the grain of irregularities show otherwise than the artist intended.

There are, I believe, many, especially amateurs, who have paintings of which they would like to have photographs, but who cannot spare daytime for the work. For such subjects as have been indicated I hope some will find pleasure and success in working with artificial light.

P.S.—One point I omitted to mention until reminded by a question. The lamplight copies of the oil painting, on plates of both kinds, came out of full intensity, and in fact, if anything, required reducing, whilst the daylight copies of the same subject without screen required a considerable amount of intensification.—*London and Provincial Photographic Association.*

CHROMIUM.

BY EM. PLACET.

METALLIC chromium has hitherto been nothing but a laboratory curiosity, and in most instances the name has been given to a more or less pure carburet of chromium I have succeeded in obtaining the metal by a new electrolytic process, which I will succinctly describe.

An aqueous solution of chrome-alum is prepared, to which is added an alkaline sulphate and a little sulphuric or other acid. This solution is then electrolysed. At the negative pole a beautifully brilliant deposit is formed on the surface of the electrode, and this deposit consists of pure chromium. The metal is very hard, and is of a beautiful blue-white colour. It resists atmospheric action perfectly, and is only attacked by concentrated sulphuric acid, nitric acid, and a concentrated solution of potash. When the electrolytic deposit takes place under certain conditions, it is even possible to obtain arrangements of chromium crystals, which recall the branches of fir trees. This metal, which can now be prepared on a thoroughly commercial scale, furnishes numerous alloys, which are being investigated.

I may add that this new process has led me to investigate "chromage," if such a word be permissible, or the electrolytic deposit of chromium upon the surfaces of different metals and alloys. My experiments have succeeded perfectly. With baths similar to the one described above I have obtained an adherent deposit of chromium of a thickness variable at will and resembling oxidised silver, upon brass, bronze, copper, and iron.

I am glad to be able to place before the Academie a specimen of metallic chromium weighing more than a kilogramme; also samples of chromium alloys and brass ornaments electroplated with chromium.—*Comptes Rendus.*

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METOL.

THIS substance is closely allied to paramidophenol, being obtained from cresol, and having the chemical structure $C_6H_3,CH_3,OH,NH(CH_3)$. The actual salt on the market is the sulphate, hydrochlorate, or oxalate of this base. It is a white powder soluble in water, giving a colourless solution which keeps in closed vessels for weeks, and the colour of which is not affected by carbonate of soda. It is a strong developer for bromide plates, and even with sulphite of soda and no alkali it will develop chloride and chloro-bromide plates.

For bromide plates the following formula is recommended :—

A. Neutral sodium sulphite	100 parts.
Metol	10 ,,
Distilled water	1,000 ,,
B. Carbonate of potash	100 parts.
Distilled water	1,000 ,,

In use, six parts of A to two of B are taken, and the image appears almost instantly, development being complete in about three minutes.

For soft pictures use half the quantity of B given above in two parts of water. The developer gradually becomes brown by use. Bromide of potassium acts as a restrainer when used in a small quantity.

For portraits, instantaneous and landscape pictures the following soda-metol developer is given :—

A. Metol	10 parts.
Sodium sulphite	100 ,,
Distilled water	1,000 ,,
B. Pure crystals of carbonate of soda	100 parts.
Distilled water	1,000 ,,

Equal parts of A and B are taken.

For soft pictures one volume of the above and half its volume of water, or A is mixed with half or quarter the volume of B.

The development is said to remind one of the rapid development of the old time wet plate, it is so very energetic.

Dr. F. Stolze in his comments upon this new reducing agent gives the two following formulæ for developing plates and bromide paper :—

I.

A. Water	600 c.c.
Sodium sulphite	150 grammes.
Metol	15 ,,
B. Water	400 c.c.
Potassium carbonate	100 grammes.

For use, 30 parts of A and 15 parts of B are added to 100 parts of water.

II.

A. Water	400 c.c.
Potassium metabisulphite	45 grammes.
Metol	15 ,,
B. Water	100 c.c.
Potassium carbonate	100 grammes.

For use, 20 parts of A and 20 of B are added to 100 of water. This developer remains colourless.

The author found that for developing bromide paper it was advisable to take 20 c.c. of A and 40 c.c. of B, prepared according to Formula II., and add them to 1,220 c.c. of water. He states that this developer is very energetic, and as it absorbs oxygen but slowly, it does not become coloured, and consequently does not stain the paper. He was able to develop ten prints in succession in the same developer, and could detect no difference between the first and last.—*Photo. Nachrichten.*

As a Developer for Positives.

Dr. E. A. Just recommends for sepia tones on gelatino-chloride plates the following developer :—

A. Distilled water	1,000 parts.
Neutral sodium sulphite	100 ,,
Metol	10 ,,

To 50 c.c. of A, 1 c.c. of a 10 per cent. solution of potassium bromide is added. The plate is exposed for four seconds to diffused daylight.

For red tones, 25 c.c. of the above solution A are taken, and to it are added 75 c.c. of distilled water and six drops of potassium bromide.

The exposure should be for from five to six seconds as above.

By the use of an alkaline carbonate a more vigorous developer can be made as follows :—

For sepia tones with gelatino-chloride plates :

Solution A as above	6 c.c.
Potassium carbonate (10 per cent. solution)	1 c.c.
Distilled water	84 c.c.

to which are added ten drops of a 10 per cent. solution of potassium bromide. Exposure, four seconds as above.

For red tones on chloride plates :—

Solution A as above	6 c.c.
Carbonate of potash or soda (10 per cent. solution)	1 c.c.
Distilled water	140 c.c.
Potassium bromide (10 per cent. solution)	7 drops.

Exposure, five to six seconds as above.

For black tones on gelatino-chloride plates he recommends the following developer :—

Solution A as above	30 c.c.
Potassium carbonate (10 per cent. solution)	5 c.c.
Water	35 c.c.
Potassium bromide (10 per cent. solution)	4 drops.

Under similar conditions the exposure must be reduced to one second.

A clearer black is obtained with the following, and this formula can also be used for gelatino-bromide paper :—

Solution A	60 c.c.
Potassium carbonate (10 per cent. solution)	10 c.c.
Potassium bromide (10 per cent. solution)	4 to 8 drops.

Exposure, a half second to daylight as before in the case of chloride.

The following formula gives good results with gelatino-bromide paper, with one-third the exposure requisite for the ferrous-oxalate developer :—

Solution A	50 c.c.
Potassium carbonate (10 per cent.)	10 c.c.
Potassium bromide (10 per cent.)	10 to 16 c.c.

Or the following can be used :—

Solution A	60 c.c.
Potassium carbonate (10 per cent.)	20 c.c.
Potassium ferrocyanide..............	5 grammes.
Potassium bromide (10 per cent.)	12 drops.

—*Photographische Correspondenz.*

PHOTOGRAPHY IN ITS RELATION TO THE ART OF PRINTING.

BY J. H. ALABASTER.

IN dealing with our subject I do not think it will be out of place to sketch, if only in outline, the history of the sister arts mentioned in our title.

I call printing and photography sisters, because in their highest adaptation both are applied in expressing all that is most beautiful in nature, in science, or in art. A photograph will present to us a delightful representation, and by the help of printing we can not only look upon a pleasing picture, but the words we read can speak to us almost with the force of a living agent.

Printing

may be described as the art of taking impressions from characters, or figures, on any kind of fabric.

As we understand the term "printing" in the present day, it may roughly be divided into letterpress printing, lithography, copper or steel plate printing, and photographic printing, such as Woodburytype, collotype, &c.

The first of these is from movable letters, metal casts, or blocks either of wood or metal ; the second from drawings on stone ; the third, as the description explains, from subjects engraved on steel or copper ; and the fourth from sensitive gelatinous surfaces acted upon by light, and forming reliefs for printing typographically in specially constructed presses.

This is perhaps a somewhat technical definition of printing, and a much wider meaning may be given to the term which brings

The History of the Art

back to the very earliest times.

It has been said by one writer that printing is the production of a copy by pressure. That is perfectly true with regard to the processes I have already named, but to quote from a history of printing published some years ago, "it may also be applied to a seal impressed upon wax to close a letter, or to attest a document : to coining —*i.e.*, to print upon gold or silver, or copper, or whatever substance used.

"If we give this comprehensive meaning to the word 'printing,' we must recognise the ancient Egyptians as the earliest printers, for they printed inscriptions on bricks, and some of the stamps which they used for the purpose now form part of the antiquarian treasures of the British Museum.

"The Babylonians also practised the art in this rude form more than 2,000 years ago, and bricks have been found bearing the name of Nebuchadnezzar. This may be called clay printing, and probably was the first step in the art.

"The next was the use of the seal for making impressions. The Romans used seals at a very early period of their history, and

"The Principle of Letter-press Printing,

though crude, was known to them. They seem certainly to have practised the branding of cattle with red-hot irons, which, after all, is printing in hair, wool, and hide. That they narrowly missed the invention of printing by wooden blocks, which must have led to movable types, is evident from the inscriptions on some of the Roman pottery unearthed from time to time. Many of these inscriptions are in raised letters stamped upon the clay when soft by means of dies cut in intaglio.

"An accident might have suggested the whole art of printing to an inventive Roman, if one of these inscribed pots had become smoked by a lamp, and in that state had come in contact with a piece of linen or damp vellum ; the fortuitous impression thus produced might have given birth to the art.

"The invention of money was another step in the art of printing. As I have already stated, to stamp on a piece of money was nothing else than printing on metal. The method used has not been materially altered in the present day. An engraving of the device to be stamped, or die as it is called, is cut in a punch, and the punch is forcibly driven against the metal, which is thereby stamped with the device.

"As seals were formed with a graver, and money with a die, it is obvious that engraving preceded the primitive method of printing.

"The First Appearance of Printing

in a practical shape was when the seal, or other stamp, instead of being forced against a softer substance than itself, was wetted with some liquid of the nature of ink, and pressed upon another body so that an image or picture of the stamp was transferred to that other body."

It is remarkable that as the Chinese are generally credited with the first knowledge of the compass, and with the discovery of less useful and delectable things withal, as fireworks and roast pork, so printing was first accomplished in China, by a Minister of the State named Foong-taon, in the 10th century. "His plan was to place a page of writing, while it was wet, upon the face of a smooth piece of wood. The writing made a mark on the wood, just as a letter does when it is turned down upon a piece of blotting paper ; in a word, the writing was impressed or transferred to the wood. Then all that part of the surface of the wood not touched by the writing was cut away, leaving the letters standing out. These were wetted with some kind of ink, paper was then pressed upon them, and an inked copy of the letter was thereby transferred to the paper. This was really and truly the art of printing.

The Chinese are remarkable for their stationary character, and, I believe, it is a fact that they print in much the same way to-day as they did 1,000 years ago. That movable types are not used may be owing to the nature of the Chinese language, consisting as it does, so, at least, I understand, of separate characters for every separate word, being, in fact, signs of words formed without the use of letters.

Printing with wood engravings was effected in 1285 and playing cards, invented to amuse the mad king, Charles VI., were also printed from blocks about 1350; so that we may presume that the art was transplanted from China to Europe, most probably through Marco Polo's description of it on his return from his travels.

The Introduction of Movable Types

forms a great stride in the progress of the art of printing. This improvement naturally grew out of block printing; yet it was effected somewhat circuitously, and may have been as much the result of accident as of design. John Gutenberg was the first person who ever printed with movable types, though his right to the honour of the invention is disputed by the city of Haarlem, which claims the discovery of the art for one of its own citizens, Lawrence Koster.

The pretensions of the Dutch, however, in his favour have been extinguished, and Gutenberg is recognised as the inventor of printing in the method mentioned.

In 1449, Gutenberg connected himself with a fellow-townsman named Faust, in the prosecution of his invention, a connection which terminated six years later by a lawsuit commenced by Faust for the recovery of money, advanced.

Previous to his quarrel with Faust, Gutenberg had made types of cut metal. The first book ever printed from these was the "Mazarine Bible," so-called because, after the existence of the edition had been forgotten, a copy of it was discovered in Cardinal Mazarine's library in Paris. The leaves are printed on one side only, and seven years were spent in producing it. The first letter in each chapter is painted in by hand.

Peter Schœffer holds the honourable position of being the inventor of

Cast Metal Types,

without which the art of printing could scarcely have become generally practised.

The casting of types at once reduced the cost of their production to less than a hundredth part of what it must have cost to cut them, and thus ensured the eventual spread of the printer's art as an ordinary profession.

It is curious to note that it was the practice of the early printers to pretend that their books were manuscript, their object being not simply to conceal the art, but also to obtain the high prices which were given for manuscript books.

Books were curiosities because they were few and costly in production. They were deemed as valuable as houses and lands, and were conveyed from seller to buyer in the same manner as estates. The inducement held out by the value set on manuscripts was so great that the early printers never sold their books as printed books if they could avoid it.

With one or two exceptions, all the books printed by Gutenberg, Faust, and Schœffer are in the British Museum.

The introduction of the art of printing into England has generally been assigned to

William Caxton.

He commenced printing in the year 1474, and found a patron in Mulling, Abbot of Westminster, afterwards Bishop of Hereford, who gave him an old chapel in the Abbey for a printing office. The spot now forms part of the site of Henry VII. Chapel. The first book printed by Caxton was a "Book of Chess," a title which sufficiently describes the nature of the work.

In 1483 there were only four presses in England—Caxton's, at Westminster: Rood and Hunt's, at Oxford; De Machlinia's, in London; and a fourth (name of the printer unknown), at the Benedictine Monastery at St. Albans. Caxton, however, seems to have been the greatest printer of his time.

Caxton died about the year 1491, and was succeeded in his business by Wynkyn de Worde and Richard Pynsent. The first, a most accomplished man, accompanied Caxton from the Continent. He introduced the Roman letter into England, and the shape of his types were used for two centuries afterwards. The punches and matrices he used in casting his types were in existence as late as 1758. The art of printing spread throughout Britain as the years rolled on. It seems pretty certain that it was not before 1480, at the earliest, that Oxford had its own printers; while the first printer in Cambridge was John Sibert, whose productions in Latin, Greek, and English bear no earlier date that 1521.

It is not necessary to follow the art as it spread gradually throughout the kingdom during the next and following centuries.

If time permitted us to follow closely the various discoveries connected with

The Art of Photography,

I suppose we might go back to the period when the knowledge of the action of light was known to the Egyptians.

The discovery of the "camera obscura" (darkened chamber) may, however, serve very well for a starting point.

Giambattista della Porta, a Neapolitan, had noticed that external objects were reflected on the wall of a darkened room when the light was admitted through a small aperture. Following up the inquiry thus opened to him, he contrived the fitting of a lens in a movable box, and in this way produced the instrument which has suggested greater things, and which to the draughtsman and photographer is invaluable.

The action of light on chloride of silver was known as early as the 16th century, and the phenomenon was studied by early experimentalists, whose names will occur to you—Scheele (1777), Genebier (1790), Ritter and Wallaston (1801).

(*To be continued.*)

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, FEBRUARY 10, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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ENLARGED NEGATIVES.

THE enlargement of photographs from small-sized negatives has become very common indeed since the introduction of bromide paper, and there is no reason why this should excite surprise, for the operation of thus making a little picture into a big one is comparatively easy, and requires no great expenditure in the way of apparatus and chemicals. It is, too, essentially the process for amateurs, who, as a rule, require but one or two enlarged copies of any one picture. What is essentially the same process is now carried out with prepared canvas on stretched frames, so as to form a basis for oil painting, and in this direction bromide enlarging has, it will be readily seen, a very wide scope. The professional worker also employs the bromide process largely, in some cases carrying on the work upon his own premises, but still oftener sending his negatives to be enlarged by one of those firms who make a *spécialité* of this class of picture, and who have attained a proficiency in their production which he, with other duties to fulfil, can hardly hope to reach.

But occasionally it happens that the necessity arises for producing an enlarged *negative* instead of a positive, for it may be that several copies of a picture are required, and it is a stipulation that those copies shall be in carbon, or perhaps in platinum. Up to within quite recent times such an enlarged negative would be made, as a matter of course, by the wet collodion method, and it must be admitted that, with the appliances at hand, and provided that the operator well understands the process, the best results are likely to follow. But, nowadays, many an otherwise efficient operator has never had anything to do with the nitrate bath, and would be quite nonplussed were he required to coat or sensitise a plate. He has been brought up upon gelatine, and to gelatine he will look for the way out of every photographic difficulty which may beset him.

Probably the first thing that he will think of as a means of securing the end in view will be bromide paper, for of course it will be quite as easy, he thinks, to produce a negative image thereon as it is to produce a positive, and, as far as the production of the image is concerned, this is true enough. The difficulty is of a mechanical nature, and is found in manipulating a large sheet of paper, which must necessarily be thin if it is to be used as a negative. But even supposing that this difficulty is obviated, and that we have done our best to make the negative translucent by any of the well-known means, we have still a certain amount of granularity which it is impossible to eradicate. Another method, and a far better one, is that proposed by Mr. Valentine Blanchard, who, from an enlarged positive on glass, obtained in the printing-frame a print on albumenised paper which, in its red, untoned state, was fixed, washed, and dried, and served as a negative.

Experimenting with gelatine plates some years ago, we hit upon a method of making enlarged negatives which we believe to have been original. In practice it was perfectly simple, and offered a means of obtaining a direct or reversed negative at will—a very important consideration if the carbon process is to be employed for printing the positives. We first of all made in the camera very perfect positives from half-plate negatives. These positives were reduced in width to about two inches, this reduction being necessary so that they might come well within the four-inch condenser which we intended afterwards to employ for making the enlarged negatives. The little positives were framed round with black varnish and placed in the enlarging lantern, the position of the film, whether turned towards or away from the light, determining whether the resulting negative was direct or reversed. The illuminant employed was a lime-light (mixed jet), burning at low pressure, and exhibiting the nearest approach to a point of light that could be imagined. (A small electric arc light would manifestly be better still.) A screen on an upright easel was fixed before the lantern at the distance necessary to give an enlarged image of twenty by sixteen inches.

The plates employed for the negatives were coated with a slow emulsion of silver chloride in gelatine. There were no plates of the kind to be bought, and so we were obliged to make our own; but the results were so successful that if ever again the occasion should arise we should have no hesitation in adopting the same method. The exposure required was, if we remember rightly, about one minute and a half, and was arrived at by trial plates of small size made with the same emulsion. The enlarging apparatus was fitted with a quarter-plate portrait lens, and the enlarged image, owing to the small area of the light, was remarkably sharp in its details. We can certainly commend this plan to anyone who is experimenting in this direction.

It is possible that in the future our plate-makers may find it advisable to supply a plate for the express purpose of enlarged negative-making. A chloride or, perhaps, a chloro-bromide emulsion would be suitable in every way, and far better for the purpose than an emulsion used for ordinary negative work, if only for one reason. Chloride plates can be safely handled in a bright yellow light. Some persons will actually deal with them in unprotected gaslight; but there is certainly much risk of fog involved, and no necessity for such hardihood when a single screen of yellow tissue paper will make that light absolutely safe. When there is sufficient demand for such a plate, we may feel quite sure that our enterprising plate-makers will see that it is forthcoming.

THE HAND CAMERA IN ARCTIC EXPLORATIONS.

BY W. E. MEEHAN, OF THE PEARY RELIEF EXPEDITION.

I CONSIDER a hand camera an indispensable part of the outfit of an explorer. I am led to this conclusion through my recent journey to North Greenland as a member of the Peary Relief Expedition. I feel sure that others of the same expedition will give testimony in the same direction as myself. I used an Eastman's No. 4 Junior Kodak, and the results were most gratifying. It may be that with a regular camera and dry plates, a professional or advanced amateur photographer can—other things being equal—obtain generally better results than from the use of a hand camera and rollable films. But where long or difficult land journeys are to be made, such as was frequently the case in the Greenland Expedition just referred to, where as a matter of necessity luggage must be reduced to a minimum in size and weight, a camera, with its attendant bulky and heavy dry plates, is scarcely practicable, however desirable. Many times, also, while on my expedition to the North, I came across places worthy to be photographed, but so nearly inaccessible that with anything else than a hand camera the picture could not have been taken.

True, I found the Kodak possessed some disadvantages. With the peculiar atmospheric effects I found it extremely difficult to get a proper focus without first taking an actual measurement—a matter not always easy or possible of accomplishment. I found sometimes also in developing that otherwise fine pictures had been ruined by some grave defect in the film, and by some curious and exasperating coincidence such defect was usually in a negative of some especially valuable object. One instance in particular I recall with much disgust. At Godthaab, a settlement in South Greenland, at the request of the Governor of the place, two Eskimos gave an exhibition for us of their expertness with Kyaks, or native boats, one feature of which was in forcing the craft of one over the other without either being upset—a rare and difficult feat. They accomplished it five or six times, and each time snap-shots were taken by the hand-camerists. By an exasperating coincidence every picture failed to turn out well; in the cases of two of the party because of films of poor emulsion; of a third the cause I do not know. Of mine in every case there were disfiguring marks directly through the centre of the films, accompanied by perhaps twenty or thirty small punctures.

Outside of a few cases like these, however, whatever failures I had could generally be traced to my own fault. As an offset to these troubles I have more than two hundred good pictures of that wonderful and mysterious island above the Arctic circle, which will always be a pleasure for me to look at, and a source of delight and instruction to my friends. Wherever I went, whether along the shores of the many fiords and valleys, or up the precipitous mountains to the table lands of Greenland, or to its awful and apparently limitless ice cap, my number four Junior was carried over my shoulder, always ready to record for me what I desired.

As a result through this valuable instrument I have photographs of natives in many and curious but natural attitudes, taken unawares, and sometimes in spite of themselves. One of these shows two Godhaven Eskimo girls running away as fast as their sealskin-trousered legs could carry them in order not to be photographed. Another portrays a woman, overpowered by the heat, taking off her sealskin jacket—her only upper garment. A third has caught a mischievous little imp in the act of rifling the pocket of one of the members of the party of sugar. Still another has caught a couple—a married couple at that—love-making. Besides these I have photographs of scenery famous in Arctic works of travel, but never before taken by camera or kodak. Prominent among these are the coast lines from McCormick

Bay to some distance in Smith's Sound, the scene of so many disasters to Arctic navigators, including the splendid and picturesque cliffs of Cape Alexander.

Quite as valuable to me as the wonderful personal experiences in this great journey are the photographic reminiscences of it. Were I going to take the same or another important journey again it is possible that I might take with me a camera for special work; but camera or no camera, the compact, quick-acting, easily-carried Kodak would have a place in my outfit.—*American Journal of Photography.*

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Chlorophyll as a Colour Sensitiser—The Collodion Emulsion Bathing Process—Preparation of Printing-out Platinotype Paper.

Chlorophyll as a Colour Sensitiser.

IN the *Phot. Archiv.* one of the numerous photographers who have answered the circulars sent out by the editors of that journal,* Herr C. Jacobi, of Venice, claims to have employed chlorophyll as a colour-sensitiser for gelatine plates as far back as 1877. If this be the case, and we have no reason to doubt it, the priority of the employment of this sensitiser would belong to Herr Jacobi, since Mr. Fred. E. Ives, of Philadelphia, claims, as it will be known, to have employed it, and to have published his method at first in 1879. Herr Jacobi describes his method as follows:—The chlorophyll solution was prepared of leaves of the cedar, and precipitated with silver nitrate. The precipitate was dissolved in ammonia, and then diluted with water until the solution showed just a yellowish-green colour. Into this solution the plates were immersed for two minutes, when they were dried without being washed previously. They were developed with pyro and carbonate of ammonia. With these plates Herr Jacobi took photographs of the fresco-painting of the Villa Valmarano, near Vicenzo, which were published in the year 1879—80, by Signor Organio, of Venice, and which were in consequence much talked of, since it was the first time that really good results had been obtained in photographing these richly-coloured paintings.

The Collodion Emulsion Bathing Process.

The orthochromatic collodion emulsion process worked out by Baron von Hübl, which was described in the columns of the Photographic News some time ago,† has, according to the *Phot. Rundschau*, been modified and improved for practical work by its originator. For copying paintings and for studio work, the bathing process with wet collodio-bromide plates is now preferred, it being said to give excellent results for these especial purposes. The new method consists in dying the emulsion with eosin and sensitising the plates after coating in a dilute solution of silver nitrate. The working details are as follows:—For dying the emulsion pure eosin, erythrosin, or rose Bengale dissolved in absolute alcohol (1 : 100) may be used. Thirty parts of the collodion emulsion are mixed with one part of the colouring solution, the mixture being well shaken and allowed to stand at least ten minutes before use. The dyed emulsion may be kept in stock, as it is of perfect durability. It being only blue sensitive, the preparation of the emulsion and the coating of the plates may be carried on in yellow light; the bathing and the development of the plates should, however, be done in red light. After coating the plate, and whilst still wet with the alcoholic solution, it is placed in a solution of 5 grammes of silver nitrate in 1,000 c.c. of water (to which, in the case of very long exposures, some glycerine may be added), and kept in motion until all greasiness has disappeared. The plate is exposed for one-fourth to one-fifth of the time which a wet orthochromatic Ducos-plate would require, when it is thoroughly rinsed with water and developed with glycin, which substance is specially suitable for collodion emulsion plates, as it allows the employment of an energetic potash developer, and works quick and free from fog without any addition of bromide. The following formula is recommended:—25 grammes of sodium sulphite are dissolved hot in 40 c.c. of water, to which solution 10 grammes of glycin are added; to this mixture, whilst still hot, 10 grammes of soda are added gradually in small portions. On the other hand, 50 grammes of dry potassium carbonate are placed in a small bottle of about 125 c.c. capacity, the warm glycin solution being added, and the bottle stoppered and well shaken. For use, 10 parts of this concentrated and well-keeping stock solution are diluted with 100 parts of water. After developing the plate is rinsed with water and fixed with hyposulphite of soda. If intensification should be required, the following formula answers exceedingly well:—

Solution A.

Metol	15 grammes
Citric acid	10 „
Water	1,000 c.c.

Solution B.

Silver nitrate	10 grammes
Water	100 c.c.

For use, ten parts of Solution A are mixed with one part of Solution B. The process of intensification is carried on as usual in the wet silver iodide bathing process. The above-described process gives excellent results in copying oil paintings and water-colour paintings, provided that a finely-grained, creamy, well-settled, and clean working emulsion is employed.

Preparation of Printing-out Platinotype Paper.

In a highly interesting and instructive contribution to the *Phot. Rundschau*, Herr Hans Watzek indicates some kinds of plain paper which are most suitable for the direct platinotype process, and also points out the behaviour of the required chemical substances. According to the author, the deepest shadows combined with pure whites and soft half-tones are obtained with medium rough Whatman paper. Effective prints are also obtainable with the very rough water-colour paper of the same firm. For small sizes and sharp images the author recommends plain photographic paper (Saxe or Rives), having a small degree of roughness. Smooth or glazed papers are not recommended for this purpose on account of the difficulty with which they take the solutions. With regard to the chemical bodies required in the process, and their qualities, the author gives the following instructions :—

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* Photographic News, No. 1,794, p. 41.

† Photographic News, vol. 36, p. 173.

Sodium Ferric Oxalate.—Solubility of the emerald green crystals in distilled water at 15° C. = 2 : 5. By influence of light, the salt is converted in the light brown ferrous salt, which is almost insoluble in water, and of which consists the primary positive image in the platinotype process. The sodium ferric oxalate should be of distinct acid reaction.

Chloro-platinite of Potassium.—Dark red crystals. Solubility in water = 1 : 6. In the presence of sodium oxalate the primary ferrous salt image is converted by this platinum salt into the secondary black platinum image.

Sodium Oxalate.—White, sandy powder. Solubility in water = 1 : 33. Should be of distinct acid reaction, and is therefore mixed with oxalic acid. It causes the quick and complete reduction of the platinum salt.

Potassium Chlorate (chorate of potash) is an energetic oxydising agent, and its solubility is 1 : 16·5. It acts as a retarder in the reduction of the platinum salt, and renders the prints brilliant ; if employed in larger quantities it gives harsh prints.

Oxalic Acid.—Solubility = 1 : 8. Poisonous. Serves to acidulate the sodium oxalate solution and the preparation mixture if required.

Bichloride of Mercury.—Solubility = 1 : 15. Very poisonous, and in the form of an aqueous solution sensitive to light. It imparts to the platinum picture the brown colour.

For the purpose of taking a proof a paper without preliminary preparation may be used. The preparation mixture consists in this case of 5 c.c. of platinum solution, 8 c.c. of sodium ferric oxalate solution, 2 to 8 c.c. of sodium oxalate solution, and of 3 drops of potassium chlorate solution. The paper gives dark-grey shadows. To produce deep tones in the shadows, the author used, in the case of previously prepared Whatman paper, 1 gramme of platinum salt to cover a sheet measuring 30 × 40 centimetres.

* * *

Ophthalmic Affections in Schools.—Dr. Cohn, of Breslau, examined more than 10,000 German scholars with reference to the alarming increase of shortsightedness amongst school children. He reported that the children attending rural schools were almost free from the affection, but that it was more prevalent amongst them in proportion to the demands made upon the pupils culminating to the maximum in the higher schools ; also, that the degree of shortsightedness, as well as the numerical proportion, increased from class to class, rising from the lower to the upper.

MIXTOL: A NEW DEVELOPER.

THE name of mixtol has been given to a developer containing hydroquinone and eikonogen. Here is the formula and the order in which the author recommends making this solution :—

Sulphite of soda ...	120 grammes.
Hydroquinone	15 ,,
Eikonogen...........	10 ,,
Yellow prussiate	20 ,,
Carbonate of potash	75 ,,
Caustic potash	15 ,,
Bromide of potassium	1 gramme.
Boiling water	1,000 c.c.
Glycerine	10 drops.

Care must be taken to operate on a slow fire, and to wait until each salt is well dissolved before adding the other. This solution, when filtered, is of a beautiful yellow colour, and of perfect transparence. It keeps well. For instantaneities, add one-half water ; for time negatives, two thirds, or better, do away with the potash and increase the quantity of carbonate of potash to 95 grammes. If necessary, add a few drops of a solution of bromide of potassium at 10 to 100. The author says that it stains neither the plate nor the fingers, that it never detaches the gelatine, that it acts rapidly, yielding vigorous negatives without being hard, full of details in the half-tones. Several plates may be developed in the same bath—thus 70 c.c. of the developer and 70 c.c. of water were sufficient to develop twelve instantaneous plates 9 by 12 centimetres ; the first required three and one-half minutes, and the last eight to ten minutes. None acquired a yellow colour ; all were good, and the bath was hardly deeper in colour than the new bath.—*La Nature.*

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CORRESPONDENCE.

CRITICISM.

Sir,—In Mr. H. P. Robinson's criticism on critics, the only one for whom he finds praise is the writer whose violent attack upon the Photographic Society of Great Britain, with little about the pictures at the Exhibition, found place in a leading daily paper. When, however, he prefaces his praise by saying it is "what we all know," he considerably oversteps the boundary of fact. What we do all know, if uncontradicted statements in the photographic press form a basis for knowledge, is that Mr. Maskell, the writer of this attack, was one of the persons, and Mr. H. P. Robinson was the other, whose persistent presence during the work of the hanging committee at the previous exhibition was felt to be such an intrusion that they had to be requested to retire.

Judging from the opinions of the photographic press, "what we all know" concerning the criticism in question is very different from Mr. Robinson's view, which he is entitled to put forward as his own merely ; whether influenced by resentment or otherwise may be judged by the character and persistency of his attacks upon the Society since the occurrence referred to. W. E. Debenham.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

1,581. WILLIAM WATSON, 37, Chancery Lane, London, "Improvements in and relating to Photographic Cameras." —*January* 24*th*, 1893.

1,669. FRANCIS LYST, 64, Somerville Road, Hatcham, London, "Improved Frame for Slates, Photographs, and the like."—*January* 25*th*, 1893.

1,696. EDGAR ALLEN BASBE (The Paget Prize Plate Company, Watford, Herts), "Printing Photographic Plates." —*January* 25*th*, 1893.

1,965. ERNEST ANTOINE VELTER, 45, Southampton Buildings, London, "Improvements in and relating to Frames for holding Plates or Films in Photographic Apparatus."—*January* 28*th*, 1893.

Specification Published.

4,138. *March* 2*nd*, 1892.—"Cameras." H. G. M. CONYBEARE, The Hut, Ingatestone, Essex.

In a camera-box is suspended a slide containing the sensitive film by pivots, so that the slide remains vertical when the camera is tilted. One pivot passes light-tight through a tube, which is attached at each end to plates inside and outside the camera, and to the outer end of this pivot is fixed an arm, with a pin on it, which may be held by a catch so as to prevent the slide swinging, the inner end of the pivot fitting into a square hole in the side of the slide. In the side of the camera is a horizontal slot, through which the tube passes, thus enabling the plates and tube to be moved horizontally, and through the top of the slide passes a third pivot, the lower end of which is fixed into a winding roller. The roller carrying the sensitive film before exposure is suspended in a frame carried by pivots, which drop into grooves in the top and bottom sides of the slide, and attached to this frame are two springs carrying a bar which presses against the film roller. A spiral spring is attached to the centre of the frame and the end of the slide.

The exposure shutter is a disc, to the centre axle of which is attached a spring barrel. At two points on the disc are fixed pins, and the release or escapement of the shutter has two pallets; a spring actuates the escapement in one direction. Instead of the spring barrel being fixed to the axle of the disc, a pinion may be fixed to the axle and driven by a cogwheel fixed to a spring barrel.

Printed copies of the full specification of the above patent may be had by forwarding 1s. for each copy and postage to Messrs. Herbert, Haddan, & Co.

* * *

THE NATIONAL PHOTOGRAPHIC EXHIBITION.—The Directors of the Crystal Palace Company announce that an exhibition of photographs and photographic apparatus will be opened on Monday, the 10th of April, and will remain open for three weeks. The exhibition will be under the joint management of Mr. S. G. Buchanan Wollaston and Mr. Charles W. Hastings. Full particulars will be announced at an early date.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

February 2nd.—Mr. G. W. ATKINS in the Chair.

REFERRING to samples of the Paget Company's printing-out opal plates distributed at a previous meeting, Mr. H. HADDON said that he had printed on both kinds and got excellent results. He preferred those with glossy surface as giving better gradation in the shadows. In future he should use these and not the matt-surfaced plates.

Mr. J. LORIMER said he had repeated the test for platinum, described at the last meeting, with gelatino-chloride paper that had been subjected to platinum toning solution without previous exposure, and got no trace of platinum in the result, thus confirming his previously expressed conclusion, that there was a real toning action with platinum.

Mr. F. A. BRIDGE related the experience of a photographer who had used on a gelatino-chloride print a reducing agent, composed of ferricyanide and sulphocyanide of potassium, until the image disappeared. On subsequent development with amidol the image (which had originally been overprinted) came up to the proper strength.

Mr. W. E. DEBENHAM suggested that the sulphocyanide was not present in sufficient quantity to dissolve the ferrocyanide of silver as fast as formed, and, therefore, after treatment and washing, there happened to be sufficient silver left to form the developed image.

Mr. J. E. SMITH inquired whether albo-carbon could be safely used in the paraffin lantern, and whether it would improve the light.

Mr. CHILD BAYLEY had tried to dissolve albo-carbon in paraffin, but though he started with only 10 grains to the pint, he could not see that, after many days, there was any of it dissolved.

Mr. OAKDEN said that albo-carbon, or naphthaline, was slightly soluble in paraffin.

Mr. A. HADDON said a high chimney would be required to prevent smokiness of flame. The danger of explosion only came in where there was a space in the oil-holder filled with mixture of air and vapour.

Mr. P. EVERITT then read a paper on "Calculation of the Angle of View," principally dealing with the method given by Mr. Haddon in a recent article, which he condemned as inaccurate, from the base of the picture only, instead of the diagonal being taken, and from not taking into account the greater angle required when the point of sight was not in the centre of the picture.

Mr. HADDON said that he was practically accused of deceiving 15,000 or 20,000 readers, and of giving a rule which was utterly absurd. All that he had actually done was to adopt the base line of the picture, as had been done generally in photographic works, of which he cited the Hardwich, Monckhoven, and Traill Taylor manuals, as the basis for consideration, and on this basis to give a rule for finding the angle less cumbrous than the methods which had preceded it.

Mr. W. E. DEBENHAM said that what was required to be known by the photographer was the angle of view included by the lens, and in the picture Mr. Everitt was quite right in pointing out that the base line did not form the base of the necessary angle, but that the corners must be reckoned for. It was, however, a mistake to suppose that it was necessary to measure from the point of sight to the farthest corner and call that half the angle necessary. It might be half the angle desirable for the lens to have, as it would allow the plane of definition to lie in the plane of the plate. The angle really necessary, however, was that measured with the diagonal of the plate as base, and the lens as apex. If the circle of illumination of the lens would include this angle, all that was necessary was to incline the axis of the lens, as was done with spring-fronts and spring-backs, until it pointed towards the centre of the picture. Although the point of sight might be on one side, this proceeding would not alter that nor change the perspective in any way so long as the position of the plate with respect to the picture remained unaltered.

Mr. **Everitt** said that altering the direction of the axis of the lens would alter the point of sight in the picture.

Mr. **Debenham** thought that was just where Mr. Everitt was mistaken. The point of sight did not depend upon the direction of the axis of the lens, but upon the place of the lens and the position of the plate.

Further discussion was adjourned.

Hackney Photographic Society.

Meeting held January 24th.—Mr. **Charles W. Hastings** in the Chair.

Mr. **Carpenter** presented a number of his lantern slides to the Society. Mr. **Reynolds** presented the Society with an album. Both gentlemen were thanked.

Mr. **Lewis Medland** then gave a very interesting lantern lecture on the Zoo. The lecturer explained that the slides were nearly all from hand-camera negatives, here and there supplemented by drawings of animals by Buffon, which latter caused great amusement. A composite picture of a lion in Epping Forest was funny. All kinds of animals were spoken of by Mr. Medland, who has travelled a great deal, and consequently the lecture was better rendered. When at the Zoo Mr. Medland was specially favoured, and has been successful in obtaining some capital negatives of the animals there; and some now dead and gone—such as Jumbo and Sally—were shown. The lantern was manipulated by Mr. A. S. Newman, assisted by the Hon. Secretary.

From the Question Box: Can Alpha paper be toned after fixing and drying?—It was said that Mr. Howson, at a previous meeting said, "Yes, it could be."

Question 2: Is it necessary to varnish a negative previous to retouching?

Mr. R. **Beckett** said: Do all the retouching, and varnish after; then mend any defect on the varnish.

Mr. **Hastings** then presented the Society with the biunial lantern won by them. He said it gave him great pleasure to be able to say their members did really excellent work, and that an additional silver and bronze medal was given. The medals were then formally presented, Messrs. Taverner and Hankins taking silver, and Messrs. Carpenter and Grant bronze. The Society also takes a gold medal. In addition, Mr. Hastings handed Mr. Hankins a medal for the monthly competition in *Hand Camera and Lantern Review*. Mr. Hastings was then thanked for presiding, and a vote of thanks was accorded the Britannia Works for having placed the lanterns in competition, thereby giving our Society the opportunity of winning an excellent prize.

The **Hon. Secretary** announced that, at the next meeting, Mr. W. E. Debenham would lecture on transparencies by carbon process.

Meeting held Tuesday, January 31st, 1893.—Mr. G. J. **Ovens** in the Chair.

The **Hon. Secretary** passed round an attachment for fixing on any ordinary gas jet a tube for use with lime-light. It prevented the tube from buckling and was readily applied.

From the Question Box: Do the fumes of ammonia cause permanent irritation to the mucous membrane of the throat, eyes, and nose?

Mr. **Debenham** said in olden days it was used strong, and he had had chronic injury through it.

Mr. **Nunn** said he had been troubled with a sore throat, which his doctor attributed to the use of ammonia.

Mr. **Gear** said he had killed a mouse with it in two or three seconds.

Question 2: What is the effect of a sample of hypo on prints after toning?

It was said that a bad sample would probably be acid and set free sulphur which ammonia would correct.

Question 3: Which is the better light for reproducing a faded photograph—artificial or daylight?

Mr. **Debenham** said it depended on the subject; if yellow, daylight would be best. Lamplight would add yellow all over and defeat its own end. He had used a violet-blue light to increase the non-orthochromatic effect where the faded half-tones were yellow.

Mr. **Debenham** then proceeded to give his demonstration on "Transparencies by the Carbon Process." The first thing to do is to get the tissue, which is coated with gelatine, mixed with a pigment, unsensitised. Sensitise before using with 1 oz. bichromate potash to 1 quart of water, with or without ammonia, preferably without. The gelatine and bichromate act together and produce an insoluble substance which does not swell in water. The pigmented film must be developed from the back, otherwise it would wash off the paper, unless for transferring; then apply a new support cemented by indiarubber, varnish the film, and wash away the first paper. The lecturer preferred red-chalk tissue. Colours were various, and sixteen or twenty different ones could be obtained. In drying, glass was perhaps better, at any rate would keep better, as there was less chance of bichromate remaining and less chance of distortion. It was very slightly sensitive whilst wet; may be dried some distance from the fire. Edges must be covered during printing, and a photometer was necessary to gauge it. He showed one he had had with about three dozen photos on of different densities. Red-chalk tissue may be toned and intensified by staining the gelatine with ordinary ink or other dyes. Mr. Debenham preferred permanganate of potash (10 grs. to 1 oz.). Transparencies were then made and handed round.

Mr. **Gear** had used transparency tissue and preferred it to the red-chalk. He preferred ordinary bromide plates to carbon, and thought that with the latter there was a slight blurring.

Mr. **Beckett** said he thought this was hardly correct, as the Woodbury lantern plates were most admired of any.

Mr. **Gear** said he cleaned his glasses with nitric acid and washed them before talcing.

Mr. **Debenham** said this was unnecessary, for if they were properly talced over, the holes, so to speak, of the glass would easily fill up and remain so.

Putney Photographic Society.

An ordinary meeting was held at the Society's Rooms on January 23rd, Dr. J. F. **Farrar** in the chair.

Three new members were elected.

Mr. **John A. Hodges**, President of the West London Photographic Society, kindly read his lecture (illustrated by lantern slides) on "Rambles with a Camera in North Wales" to those members and their friends, about one hundred, who were present. No doubt this large attendance was mainly due to the pleasing recollections of his lecture on "North Devon," given before the Society last year. Mr. Hodges' graphic powers of description, marked enthusiasm for Welsh scenery, together with his quiet, dry humour, were thoroughly appreciated by an attentive audience. It is quite unnecessary to say that the hundred slides illustrating his remarks were of the best quality, showing true artistic feeling, as well as perfect technique. For the information of any brother photographers who may wish to do good work in Wales, the following particulars of the route taken by Mr. Hodges may be acceptable :—Start from Llangollen and follow the course of the Dee, past Bala to Dolgelly, thence down the estuary of the Nawddach to the sea at Barmouth, continuing the journey by the Cambrian Railway to Harlech and Portmadoe. Leave the train there and proceed by coach to Beddgelert, changing there into the Bettws-y-Coed coach. From that quaint and picturesque village take the North-Western Railway to Conway, Penmaenmawr, Bangor, and Carnarvon. By taking this route no doubt much of the finest and most beautiful scenery in North Wales could be visited in a tolerably short trip of about a week or ten days.

A cordial vote of thanks to Mr. Hodges for his very entertaining lecture was enthusiastically carried.

Rochester Naturalists' Club (Photographic Section).

A meeting of the above was held at the Mathematical School on January 24th, when Mr. **Neate** exhibited some apparatus of his own designing, one being for the exposing of a plate one quarter at a time, due to an appliance fixed in front of the plate, and by shifting the lens to the four quarters ; the arrangement was a simple one, and several plates were exhibited showing the copying of four sheets of manuscript from a book on one plate ; another being a washing apparatus for plates and prints, and Mr. Neate promised to get some made for the members.

The rules and regulations for the photographic competition to be held on April 12th were settled at this meeting.

Newcastle and Northern Counties Photographic Association.

The annual meeting of the members of the Newcastle and Northern Counties Photographic Association was held on January 24th, **Alex. S. Stevenson**, J.P., in the chair.

Mr. **Thompson** (President), in the absence of the treasurer, submitted the financial statement, which showed that the balance in hand at the beginning of the year was £3 18s. 9d., and after paying out during the year £31 16s. 6d., there is a present balance in hand of £5 9s. 6d. The report was adopted.

The **Hon. Secretary** (Mr. Edgar G. Lea) read the annual report, which stated that the Council again had pleasure in being able to congratulate the members on the continued and increasing prosperity of the Association, the membership now standing at 168, being an increase of 40 as compared with the previous year. The meetings, both outdoor and indoor, had been much more numerously attended. The acquiring of new premises at the Art Gallery undoubtedly constituted one of the most important events in the history of the Association, and the Council hoped that with the increased facilities for useful work which it now possessed, the Association would continue to progress in the future. Outdoor meetings had been held at Stocksfield, down the Tyne, and Naworth and district, and, on the whole, were well attended. The Council, in conclusion, expressed their extreme regret, in which the members would join, at the loss the Association would sustain by the removal of the president from the district. The report was adopted.

The result of the election of officers was then announced as follows :—President, Mr. J. Pattison Gibson ; vice-presidents, Alex. S. Stevenson, J.P., Mr. L. Sawyer, Mr. M. Auty, and Mr. H. G. Ridgway ; treasurer, Mr. Frederick Park ; secretary, Mr. Edgar G. Lee ; assistant secretary, Mr. James Brown ; council, Messrs. W. Parry, W. P. Brewis, J. Watson, J. H. Robinson, G. L. Snowball, T. O. Mawson, J. Kirkwood, L. Williamson, W. E. Cowan, and G. Hall.

Richmond Camera Club.

The meeting of this Club, on the 30th January, was held at the works of Messrs. Morgan & Kidd, to witness a demonstration of the collotype process, preceded by an address given by Mr. R. L. **Kidd**, as detailed in the Photographic News last week. The attendance was large, and comprised a great number of well-known photographers.

At the termination of the demonstration Mr. **Cembrano**, jun., called for votes of thanks to Mr. Kidd for the trouble he had taken to give such a thorough demonstration ; to Mr. Berghoff for the able and courteous manner in which he had replied to the questions put to him ; and last, but not least, to Mrs. Kidd for having been so kind and hospitable to every one present.

Mr. **Debenham** thought that they could but recognise that the demonstration had been most successful in more ways than one. He thought that Mr. Kidd had hardly given to the collotype process all the praise it deserved. The demonstration had been most complete. Every part of the process had been fully described, every question answered, and no secret had been made of any detail in the working.

Mr. **Kidd** briefly acknowledged, and added that in collotype, as well as in other photographic processes, there could be no secrets and no necessity for them, as it was only by skill and constant care and perseverance that a process could be successfully worked.

Croydon Camera Club.

January 30th.—Messrs. J. Patrick, E. Pierce, and R. Lock were elected members.—The **President** referred to the advantages which would accrue by the Club accepting the invitation of the Photographic Society of Great Britain to become affiliated. The matter was deferred for further consideration.

Mr. B. **Gay Wilkinson** explained and showed the procedure needful in making lantern slides by reduction, from which it would appear that only very simple contrivances are necessary, and that the way in which the lecturer obtains his delightful atmospheric effects is by the adoption of methods surprisingly primitive.

The annual dinner is fixed for March 8th, and an important exhibition is being organised to be held in April.

Liverpool Amateur Photographic Association.

The second of the Thursday Evening Practical Demonstrations was given in the Club Rooms, when a lecture and practical demonstration by Mr. E. M. **Tunstall**, on "Lantern Slide Making," was given before a very good attendance of members, who followed him with great interest. All points of a nature likely to lead to failure were fully explained, including suggestions as to the best negatives, exposure, and development. The lecturer strongly urged that the developer recommended by the maker should be used; he, however, preferred hydroquinone as the simplest and as a good all-round worker. After several example plates had been treated, at the suggestion of Mr. Tunstall, Mr. G. A. Carruthers was asked to show the members his method of making slides by reduction by artificial light. This was done in a Pearson & Denham's reducing camera by an exposure of six inches of magnesium ribbon burnt behind the negative (a 5 by 4 film), with a sheet of ground glass between the negative and the light, and by moving the magnesium ribbon about while burning to ensure even lighting, the result being a perfect slide with not the slightest sign of uneven lighting. A Mawson plate was used. This, in the opinion of the lecturer, being one of the fastest and most reliable plate for the experiment.

After a vote of thanks to Mr. Tunstall, the Chairman announced that next Thursday, Charles A. Kohn, Esq., Ph.D., B.Sc., of the Liverpool University, would deliver a lecture on the "Chemistry of Photography," when, it was hoped, there would be a large attendance of members.

Tooting Camera Club.

Next meeting, February 19th, lantern night.—It has been decided to change the headquarters to Upper Tooting, and the temporary place of meeting for this night will be at the Bell Coffee Tavern, Upper Tooting, when photographers residing in the district will be welcome.

Birmingham Photographic Society.

A very instructive and interesting meeting of the Society was held in the Club Room, Colonnade Hotel, on the evening of Tuesday, the 31st ult., when a non-competitive exhibition of members' negatives took place.

The object of the exhibition was to place before the general members, and especially the beginners amongst them, a standard of good work.

It is gratifying to report that, so far as the quality of the work on view is concerned, the exhibition was eminently successful. Upwards of one hundred negatives were shown, the work of sixteen members. These were displayed to the best advantage on racks running down each side of a long table, a row of lamps being placed between them, and the light diffused by the intervention of tissue paper.

It would be no exaggeration to say that there was not a second-rate negative amongst them, but the exhibits of E. C. Middleton, I. H. Pickard, E. H. Jaques, J. T. Mousley, E. Underwood, and Wm. Rooke called forth unstinted admiration. Mr. W. S. Horton also had on view a series of collodion negatives, copies of celebrated pictures taken many years ago, which were much admired.

Altogether the Society has just cause to congratulate itself upon the success of its experiment and the good which will undoubtedly accrue from it.

Leytonstone Photographic Society.

Ordinary Meeting, held February 2nd.—Mr. A. E. Bailey in the Chair.

Mr. L. E. Morgan (from Messrs. Fuerst Bros.) gave a most able demonstration on the uses of the new developing agent "amidol." Having previously exposed a plate he developed same most successfully with amidol, giving every advantage with half-tone and density possessed with pyro, but without the stain. Bromide paper and lantern plates were next dealt with, and all with a one-solution developer and with the same success; after which Mr. Morgan was deluged with inquiries, to all of which a most lucid explanation was given. It was the general opinion of the members present that amidol has a great future before it.

A vote of thanks to the Chairman brought a very interesting evening to a close.

Leeds Photographic Society.

Meeting held on Thursday, 2nd inst.—Mr. Warburton in the Chair.

Mr. T. Illingworth, of Halifax, gave a demonstration on "Development."

In the first place he advised amateurs to fight shy of rapid plates, and stated that he found ordinary plates serve him for almost all purposes. He developed several Barnet ordinary plates, which he prefers to all others at present in the market.

Mawson & Swan's pyro ammonia formula he developed by:—Plates exposed in the studio: one 5 seconds and one 15 seconds, he used 12 drams pyro sol., 8 drams ammonia sol., three minutes to develop; one 20 and another 30 seconds, 12 pyro and 6 ammonia, seven minutes to develop; one 40 and another 60 seconds, 16 pyro and 6 ammonia, fifteen minutes to develop. He then made a transparency, same plate, 40 seconds exposure, 5 feet from ordinary gas burner, developed with 12 pyro and 8 ammonia, all of which proved a complete success.

A hearty vote of thanks was given to Mr. Illingworth for his demonstration, which was full of interest and instruction, and of great use, especially to the younger members.

Lewes Photographic Society.

Dr. Collins, on Thursday last, gave a very interesting lecture on the breeding-places of gulls and other sea birds on the north of Scotland, illustrating it with numerous lantern slides from views taken of the rocks and islands covered with the birds. The novelty of the subject was much appreciated and an enjoyable evening spent.

The Photographic Society of Philadelphia.

At a meeting on Wednesday evening, January 11th, 1893, the President (Mr. Joseph H. Burroughs) in the chair, it was stated that preparations for the sixth annual exhibition are progressing favourably. The Boston and New York societies are taking special steps toward collecting representative exhibits from their members.

Resolutions making several amendments to the bye-laws were offered by Messrs. George M. Taylor, Edmund Stirling, and E. D. Shaw.

Mr. F. E. Ives exhibited his latest improvement in the heliochromoscope, a neat and compact attachment containing a plate-holder and selective colour screens, which can be substituted for the chromogram holder, converting the heliochromoscope into a camera for making the chromograms. Mr. Ives stated that the idea of doing this was not new, but he had been unable to carry it out to advantage until he discovered that the eye-piece would serve as an objective, giving an angle of view of nearly fifty degrees, and an image of exactly the right size.

The arrangement possessed several advantages, amongst others, the image was formed by light rays entering the eyepiece at exactly the same angle at which they entered the eye when the instrument was used as a heliochromoscope, with the result that the effect of perspective was so perfect as to heighten the illusion of nature, already so remarkable by reason of the combination of true colour with the light and shade of photography.

Mr. **Sache** inquired what the effect would be if a triple negative were placed in the heliochromoscope instead of a triple positive.

Mr. **Ives** replied that the complementary colours would then be seen.

Mr. **Stirling** remarked that this was a striking verification of the correctness of the colour theory on which the heliochromoscope was constructed.

Dr. **Janeway** remarked, in connection with the reference in his paper to sound produced by the action of light, that he had noticed, while on duty on the western plains, sounds proceeding from telegraph wires—just after dawn and before sunrise—which he believed were due to the action of light rays.

Mr. **Earle** exhibited the "Perfection Magazine Flash Lamp," for burning pure magnesium. The prominent feature of this lamp was its adaptibility for either instantaneous or time exposures. The lamp was constructed on the principle of the argand burner, with the purpose of ensuring complete combustion.

Mr. **Rosengarten** inquired whether any member, in experimenting with flash-light, had used powdered aluminium He had been given a formula the other day—a mixture of aluminium, chlorate of potash, and some other highly-oxidising substance.

Professor **Sadtler** stated that he had used aluminium in the form of very thin foil, and it burned with fully as vivid actinic light as magnesium, but was a little slow in ignition

Dr. **Janeway** suggested that the celluloid diffuser, sometimes used in flash-light work, could be protected from the danger of ignition by coating it on both sides with silicate of soda—liquid water glass.

Professor **Sadtler** asked the doctor whether he got the preparation to adhere uniformly.

Dr. **Janeway** said the only requisite was to dilute it one half and apply with a flat brush. It flowed very readily and dried in a few moments.

Mr. **Earle** thought the reason why the celluloid took fire in Dr. Janeway's case was because of the dampness of the magnesium powder, burning particles being blown against the screen, instead of being consumed. The powder should always be dried before using.

Mr. **Luders** asked if the moist breath blown into the lamp would not account for dampness of the magnesium.

Mr. **Earle** said that it might.

◆

Queen Victoria's liking for photographs is well known, and Her Majesty probably possesses one of the finest collections of pictures by all processes which it would be possible to get together. It is said that the most valuable New Year's present which she has received this season is the gift of the German Emperor and Empress. It is a magnificent album, bound in morocco and clasped with gold, containing between thirty and forty very large photographs of the exterior and interior of the famous Schloss-kirche of Wittenberg, the reopening of which building last autumn, after a thorough restoration, was attended by the Duke of York. This album has been added to the Queen's private collection at Osborne.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Quaero.—Sometimes the spots will disappear if gently rubbed with spirit on a pad of fine linen. If this will not do try the following :—

A.—Ammonium sulphocyanide	30 grs.
Water	1 ounce.
B.—Nitric acid	½ drachm.
Water	1 ounce.

Mix just before use, immerse the negative for a few seconds, thoroughly wash, and treat with strong alum solution.

Fire Escape.—We doubt whether any ordinary fireproof safe would efficiently protect your lenses in a fierce conflagration. Apply to the makers of such a safe and see whether they will give you a guarantee to that effect. Some years ago a safe was patented, the sides of which were stuffed with asbestos charged with a deliquescent salt, the idea being to cool the safe by evaporation in case of too fervent a heat. We do not know whether this contrivance was ever introduced commercially.

A. C. B.—From the short history given of your bath we should say that it must be too alkaline. If so add nitric acid (pure) drop by drop until it is in a neutral condition.

U. S.—You will get the black and white effect which you seek by using photo-mechanical plates. They require about three times the exposure of ordinary plates, and are, therefore, only suitable for copying purposes.

Chloride.—Use ammonium chloride (sal ammoniac) in preference to the sodium salt.

Effie.—The Licht-druck process is a synonym for collotype, albertype, &c.

Jasper.—The so-called watermark in the picture which you forward is produced by a process invented by Woodbury, which he called *Photo-filigrane.* Briefly, the process consists in passing the picture through a roller press, together with a gelatine relief, the raised parts of which are pressed into the paper, giving the appearance of a watermark. The process had not any commercial value, but it showed great ingenuity.

P. C.—Soluble in 16 parts of cold water. Not soluble in alcohol.

W. King.—For red tones on gelatine-chloride paper, give three or four times the normal exposure, and use a very dilute hydroquinone developer. A less certain method is to use a very old ferrous oxalate developer. See Bothamley's "'Ilford' Manual" for other formulæ.

Toner.—The white deposit on your prints is due to a deposit of silver chloride. You can avoid it by washing more thoroughly before toning, and omitting the addition of salt to your bath. You can remove it with a sponge if it prevents you judging of the colour. Of course it disappears instantly in the fixing bath.

H. G. Torney.—The following may perhaps serve your purpose :—Abney's Handbooks (Piper & Carter, 5, Furnival Street, London) ; Hepworth's "Photographic Manual" (Cassell & Co., London) ; Hubert's "Retouching" (Hazell & Co., 1, Creed Lane, London).

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1798. FEBRUARY 17, 1893.

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NOTES.

THE railway companies have long ago found it to their advantage to exhibit in their carriages photographs of the chief places touched by their respective lines, and the custom is one which is certainly appreciated by travellers, for pictures are pleasant things to look upon, and they relieve somewhat the tedium of a journey.

BUT the Great Western Company have made a new departure recently by starting a photographic exhibition on the departure platform at Paddington Station. This consists of a handsome oak screen, containing about one hundred platinotypes by Mr. Payne Jennings, whose name is a guarantee that the pictures are not mere records of places which can be reached by the railway, but have the added charm of artistic vitality.

BY the way, how much the beauty of places close to the railway track is being spoilt by the growing custom of erecting advertisement hoardings so that he that runs (on rails) may read. It is bad enough when pills, mustard, soap, &c., are thrust in our faces at the actual stations, but now these interesting commodities have special scaffoldings in the midst of meadows quite out in the open country, and many a good landscape is thus spoilt.

WE all know the meaning of the words "ferrotype," "platinotype," and "collotype," but what is a "mahoganytype"? A weekly paper enlightens us on the point. It is, we are told, the custom of certain photographers, when a customer presents himself on a yellow, foggy day, to *pretend* to take a photograph by drawing out the shutter of the empty dark slide. The customer is afterwards told that the portrait, for which he has paid in advance, is not quite successful, and is persuaded to give another sitting. The pretended operation is called "taking a mahoganytype."

WE fancy that the public generally know rather too much about photographic manipulations to be gammoned in this way, nor has the operator any temptation to thus dally with his sitters now that various forms of artificial illumination have made him less dependent upon daylight than of yore. The "mahoganytype" story probably arose in the old daguerreotype days, when photography was regarded by the public more in the light of a conjuring trick than a chemical operation.

THE caricaturists who have been induced to talk about their method of working have said a good deal which is suggestive of instantaneous photography. For instance, Mr. Lockwood says that if he laboriously sketched a face or figure while looking at it he would fail totally. An impression of the salient points is conveyed to his brain, and it is after the object has disappeared that he recalls the impression and can put it on paper. Mr. Leslie Ward ("Spy") says much the same thing, adding: "Sometimes a face will go altogether, and do what I will to recall it, I fail, until it suddenly flashes quite vividly across me, often just as I am falling asleep." From this it is clear how difficult it is to settle what really constitutes a likeness. Slavish reproduction of lines will not do it. Hence, caricaturists get no assistance from photography, though the instantaneity of impression is somewhat akin. But the sensitive plate cannot catch more than one fleeting aspect; the human eye can retain half a dozen.

PHOTOGRAPHIC preparations for the observation of the total solar eclipse on April 15-16th are being made on a very complete scale. At the last meeting of the British Astronomical Association, Mr. E. W. Maunder described the apparatus to be sent to Senegambia and Brazil. Among other instruments will be a photo-heliograph with two lenses, both 4 in. aperture, one to take an image of the sun at the primary focus 6-10 in. in diameter, while the other will be fitted with one of Dallmeyer's new negative enlarging lenses, and will give an image 1½ in. in diameter. The plate-holder will carry two plates, and thus the negatives will be side by side and can be easily compared. An exactly similar instrument will be used in Brazil, so that two similar sets of photographs will be obtained from stations more than two thousand miles apart, and with an interval of five hours between them. At both stations photographs of the coronal spectrum will be taken with a pair of ordinary spectroscopes, one with the slot radial and the other tangential to the edge of the sun.

Mr. Fall, of Baker Street, has been interviewed concerning his experience of photographing Mr. Gladstone at Hawarden, on the occasion of a series of political meetings at Leeds, which at the time excited great interest. The arrangement made was that Mr. Fall should take the negatives, which were to be distributed among the Leeds photographers for printing purposes. This arrangement was duly carried out, very much to the advantage of all concerned, for so great was the demand that one struggling photographer maintained his family through the winter on the proceeds of the sales. Mr. Fall found Mr. Gladstone most amenable to his requirements, as indeed might have been expected from the multiplicity of the portraits of the great statesman which abound. In this respect he differs greatly from the late Earl of Beaconsfield, who had a horror of photography, and could only with difficulty be induced to sit. The best photograph of the Earl—the well-known one in which he wore a velvet coat—was, if we remember rightly, taken by the late Mr. Jabez Hughes, who happened to be photographing at Osborne when the leader of the Conservative party was on a visit to the Queen.

Mr. Fall inclines to the opinion that the best view of Mr. Gladstone's head is either the profile or three-quarter aspect. The full-face view, selected by most photographers, he considers to be a mistake. Mr. Fall is right; for, as a rule, the complete full face is the least expressive and the least like of any position. Indeed, it may be said to be inadmissible, save when the sitter is possessed of an unmistakably tiptilted nose. In the case of Mr. Gladstone, the lighting of the forehead is a very important matter, and the full-face aspect is not its best, as the grand contour of the temples is lost, and a flatness results, which is rather misleading.

Photography has thrown a curious light upon plant life. Photographs of a seedling have been taken every half hour, with the result that sufficient change has taken place in the growth to be noted on the sensitive plate. A series of these photographs, placed in the zoetrope, give the impression of a stem growing under our very eyes. The statement is made that photography has demonstrated that even when asleep the plants were continuously growing, and not by interrupted movements, as was formerly supposed. This may be so, but is the fact altogether established? The photographs cannot be taken without light, and, as we know artificial light has an appreciable effect upon plant growth, the movement observed may be due to this light, and is not evidence that when in darkness the movements may not be suspended. This, however, is a question more for the physiologist than the photographer, and we only hazard the suggestion in passing.

Messrs. Valentine & Son, of Dundee, are the first among photographic firms to try the experiment of an eight hours' day for their workpeople. From the circular announcing this change we extract the following:—

> "We do not intend to reduce wages, as, with the co-operation of our employés. we believe it possible to fully maintain the same production as under a fifty-two hours' week. We propose to give this scheme a fair trial for six months from this date, when, should our anticipations not be realised, it may be found necessary to re-consider the matter. We, however, hope that our employés will unanimously endeavour to make the movement a success, by prompt commencement of work daily, and continued attention to it during the hours specified. As the success of the scheme depends entirely on the diligence of every employé, it must be distinctly understood that any idling or negligence may cause instant dismissal, without warning."

In discussing this new departure at the annual social gathering of members and employés of the firm, Mr. Valentine pointed out that to make it a success one or two matters should receive attention. He had "noticed that when the dinner whistle sounded the place was cleared in two or three minutes, but when the signal to return to work was made some ten minutes elapsed before everybody was settled down. Then he would say a word to the girls in particular on the subject. A man could talk and work at the same time, but when a girl talked she stopped work, and he thought that, with a little attention to this, they would not miss the four hours a week."

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PHOTOGRAPHY IN ITS RELATION TO THE ART OF PRINTING.

BY J. H. ALABASTER.

(*Concluded from page 87.*)

FROM the results of these investigations experiments were made by Thomas Wedgwood and Humphrey Davy in the Royal Institution, London, which were published in its *Journal*, 1802. Wedgwood, who was the fourth son of the great potter, may be regarded as

The First Photographer.

He discovered a method of copying paintings on glass by placing beneath a white paper covered with a solution of silver nitrate, and exposing to the action of solar light. He could not, however, fix the images. But in 1814, M. Niépce discovered a method of producing, by means of the camera obscura, pictures on metal plates (coated with bitumen), at the same time rendering them permanent.

Another name wtll suggest itself to many — Mr. Daguerre. He commenced experiments in 1824, and two years later joined Niépce, and worked with him till the death of the latter in 1833.

In 1839, Henry Fox Talbot first published his mode of multiplying photographic impressions by producing a negative photograph (*i.e.*, with the light and shades reversed), from which any number of positive copies may be obtaiued.

I think the

Earliest Application of the Art of Photography

to that of printing is the discovery of photo-zincography in the year 1860.

This is a process by which photographs are transferred to zinc plates which may be printed from.

It was invented by M. Toowey, and perfected by Sir Henry James, Chief of the Ordnance Survey; and made known at the date already mentioned. Charts, maps, and engravings can be printed in this way at small cost. The adoption of the process by the Ordnance Survey Office has resulted in the saving of expense to the Government.

It was not till 1861 that photography was successfully applied to the transfer of works of art to

Wood Blocks.

This was accomplished by Mr. John Leighton in his illustrated edition of the "Lyra Germanica." I have here wood blocks of two subjects showing the image photographed on the wood. The process is of much importance, as the original drawing is preserved, not only for comparison with the finished engraving, but it may be for its artistic value. The drawing also may be of any convenient size, and reduced on wood; a great consideration when minute objects are to be represented.

After the photographing on to the wood is done, the picture is "lined up," if necessary, and more clearly defined by the aid of the pencil and Chinese white. This is not always done to aid the engraver, as a skilled engraver prefers to interpret the drawing in his own way without aid, even though the photo on wood be indistinct; but it is very often important that the subject should be clearly defined, so that the person to whom it is submitted for approval may judge of the correctness and suitability of the block for his purpose. (*Specimens shown.*)

Photography itself, as a science, has advanced very rapidly, even within the last few years. Discoveries are constantly being made of more or less merit, and makers of apparatus are ever ready with something new. But apart from this, during the last decade, photography has entered very largely into the ordinary commercial undertakings where printing is employed.

The Art of making Blocks

with the aid of photography, for the purposes of illustrating, forms at the present day a flourishing industry. Whilst admitting the beauty of a really good wood engraving, it must be granted that for truthfulness and delicacy nothing can excel a good zinco block for use with letterpress; and it has this further merit, that the cost is considerably below that of wood engraving.

Of course, artistic taste and great skill and care in manipulation are required to produce a beautiful illustration, though it is often the case that the choice of picture is with someone who is unacquainted with the requirements of the half-tone process, as it is termed. The beauty of execution in the block is due to the zincographer; but photographers also have a great deal to learn as to the requirements of the half-tone process, in order to ensure a really good block. This will account for the great differences in the appearance of some blocks in illustrated magazines and papers.

It is impossible to produce a good block from a negative or a print which does not lend itself to the process; and it is equally impossible for the printer "to make anything," as the phrase goes, from some blocks that are produced, owing to want of depth and other circumstances. Sometimes, however, by force of circumstances, it is really impossible to obtain a good negative or photograph to illustrate a given subject—a fact which will serve to explain in a degree the great variety in the quality of the block produced and printed.

There are, as you know,

Various Methods of illustrating

the text of any given work, more or less elaborate and more or less expensive in execution. For example, there are lithographs where many colours are used; or many-coloured prints from a series of wood blocks or zincos carefully registered—*i.e.*, so made that each colour will fall exactly where required. Photography is largely employed for the production of these pictures; or in lithography to ensure accuracy of outline; or for the sake of exactly reproducing stains of age, or usage, or imperfections in old documents, or parchments, or other subjects of antiquity.

Then, again, there are the various and beautiful photographic processes and prints, printed direct on the paper which is to form the leaf of the book; or a photograph may itself be mounted on to the leaf of the book, to form an "inset" or frontispiece.

Of the methods I have already mentioned, I suppose that collotype, autotype, or Woodburytype, would be the best forms of illustration for certain subjects for commercial purposes, as they most closely represent actual photographs. Collotype is described to me as bichromatised gelatine spread upon glass and printed beneath a negative, then washed out and used as a printing block in specially constructed presses or machines. The gelatine, I believe, is affected a great deal by the weather, and I am told that there is difficulty in obtaining two impressions alike ; but I have no doubt, in the hands of the experienced collotype printers of the present day, these difficulties will soon be overcome, and it certainly is to their great credit that such good work is turned out, in spite of the drawbacks mentioned. Collotype, too, has one distinctive and attractive merit besides beauty, and that is economy in cost of production. But I must not, even if I could do so, dilate further upon this subject, as, by the kindness of one of our members, I believe, we are to be favoured shortly by a demonstration at his works.

It was rather my wish to bring before you this evening examples of

The Employment of Photography

in helping the printer to produce an illustration at once effective and economical.

For our purposes we can divide the term printing into two main divisions—viz., Lithographic and Letterpress printing.

In the first of these, then, photography can be employed to produce a subject or design upon a lithographic stone, ready for printing purposes, in much less time and with greater faithfulness than can be secured at the hands of an average lithographic draughtsman.

Take, for example, a white lace curtain or piece of lace. It is required to show effectively the design of the curtain. This must at least incorporate a corner ; most generally half a curtain is preferred. Now, it is quite obvious that to secure the print which you see (*specimens shown*), it would take a draughtsman a long while to complete his work, and it would of necessity be very costly ; so the end is achieved by means of what is called the photo-transfer process. An ordinary wet-plate negative is taken, and a print obtained on paper coated with bichromatised gelatine. This receives a coating of lithographic transfer ink specially prepared for the purpose. It is next floated in warm water till the lines are seen as depressions. With the aid of a sponge and water, the soluble portion (or white) is removed, leaving the picture in insoluble gelatine with its coating of transfer ink. It now only requires to be dried and transferred to the stone for printing in the usual way.

In printing the illustrations for a catalogue or book, the letterpress, or type portion, can, if necessary, be transferred to stone in much the same way, by "transfers" being pulled on transfer paper, and the whole "laid down" and printed at one and the same time.

Photo relief etching is a term applied to a picture in relief on metal, which can be used like a woodcut in the ordinary printing press.

Photography is very generally employed in the production of

Line Drawings.

To produce blocks of these for the purpose of letterpress printing, the image must be produced on zinc from a reversed wet-plate negative, giving, of course, a positive upon the zinc, but the reverse way to the drawing. The mechanical tint, or stipple, is added afterwards if required. The plate is now rolled up and slightly warmed before placing in the acid bath or etching solution. It is then well rinsed under the tap, and dried with gentle heat upon a hot plate, and gummed in. After it has been allowed to cool, the gum is removed with a sponge. The plate is again "rolled up," and the surface coated with powdered resin and again subjected to the etching solution. The operation of "rolling up," warming down, dusting with resin to protect the sides of the lines, is repeated until the plate attains sufficient depth. The whole of the resin is then washed off, and the removal of the "steps" or shoulder, is effected by a series of acid baths in much the same way as the depth is attained, with the exception that the resin is omitted.

Collodion, for wet-plate photography, which, I understand, still maintains its stand for copying, was, as most of you are doubtless aware, introduced by Archer, in 1850.

It is desirable, in order to procure the best results, that the subject be drawn larger than is actually required, and bolder in proportion. (*Specimens shown.*)

I have also the pleasure to submit a specimen of another system, interesting on account of its producing somewhat similar results without the aid of photography. Here is a copper-plate from which a "transfer" has been taken and transferred to zinc direct. The zinc plate is ready for etching in a similar way to the method just described. I also can show the finished block and impression from it.

I have mentioned

The Reproduction of Lace

for lithographic printing, but lace may also be illustrated by the aid of zinc blocks such as I have described. In the case of white lace the piece to be photographed is fastened to black material which does not "give off" any light, consequently the result is a beautiful reproduction with sufficient detail to show the pattern. Black lace is made to adhere to ground glass and photographed against the light—that is, the ground glass is suspended in the line of light between, say, the window and the camera, the lace towards the lens.

So much for line drawings, but by far the more artistic blocks are designated by the term

"Half-tone Blocks."

These are specially suitable for portraits, landscapes, and architecture. The processes by which they are produced may be very simple when you know them, but they are not publicly known, and I am sorry I cannot do more than show you a specimen, the start and the finish as I may call them.

1. Photograph. 2. Finished block from same.

I read, however, that some modifications of the methods patented by Mr. Fox Talbot, in 1852 and 1858, are understood to be in use. He called his process photoglyphic engraving. Talbot got the image with bichromatised gelatine. The necessary reticular grain was given to the plate in two ways. By one of these he covered it, after development, with a fine deposit of resin. It is then ready for the etching solution. By the other method he took fine muslin or netting and applied it by mechanical pressure to the plate which covered it with fine cross lines. Goupil, of Paris, has a process which is believed to be worked upon the plan of forming a gelatine image, and then electrotyping it. But, as I have said already, the patentees of the various processes do not allow information to leak out if they can help it, and most producers have chemical secrets known only to themselves, though general principles may apply to all the methods.

Most of you are familiar with the lettering, as it is called, on the

Covers of Bound Books.

The designs for these are usually cut in brass, from drawings on paper; but since the application of photography zinc blocks are now being made which bid fair to supersede the older and more expensive brass blocks. The metal for these is rendered extra hard to resist the heat necessary in the process of gold blocking.

All process blocks can be duplicated to any extent by electrotyping or stereotyping at a low cost, so that one may readily perceive the advantage to be derived by advertisers wishing the same illustration to appear simultaneously in, say, fifty periodicals or newspapers. The cost of fifty original blocks would, of course, be practically prohibitive.

The public then reap a benefit by the production of the kind of blocks that I have attempted to describe, because attractive books, newspapers, and periodicals are produced at a figure which would be well-nigh impossible if the old system of wood-engraving were resorted to.

Zincography in its Development

has naturally told unfavourably upon many wood-engravers, but these again in many instances have linked this department with their original profession; and really, for first-class work, steel engravings and wood blocks of high quality hold their own, though, for commercial purposes, people will not pay the high prices demanded for them. But then, again, it is quite impossible to employ photography on some subjects, and a choice has to be made of some other method of illustration.

One reason of the popularity of "zincos," is that they can be worked with the type, ensuring, of course, a saving in the printing, the whole being done in one operation instead of two or more, provided, of course, the type and block are to be printed in the same colour.

In the illustration of books and newspapers, it is, of course, most desirable that the reproduction of the photographs should be made as perfect as possible, and, in this connection, before concluding, I must acknowledge my obligation to Messrs. Swain & Son, of Farringdon Street, not only for valuable aid in the technical parts of my paper, but for the skill and care exercised in producing, at my request, the excellent specimens I have been privileged to submit.

I cannot pretend to have exhausted the subject before us, but I trust I have said enough to show you the utility, if I may be allowed the term, of the photographic art to commercial purposes. The application of the art in the way I have attempted to demonstrate has done very much to raise the tone of publications generally, and to educate the taste of people who read them. It has also contributed largely to replace the crude and occasionally vulgar illustrations of bygone days, and it enables authors and publishers to put into the hands of readers, of even the cheapest literature, artistic and truthful representations of persons, current events, and matters of interest generally.—*A Paper read before the Richmond Camera Club.*

MENSURATION BY MEANS OF PHOTOGRAPHY.

BY DR. J. DE NOBELE.

PHOTOGRAPHY, owing to its marvellous power of reproducing objects with distinctness, has been found to be of practical utility to almost every branch of science. The physician, for his part, has been by no means indifferent to its merits, and has not disdained to make frequent use of the sensitive plate. But there is one branch of the healing art to which photography has rendered special service. I refer to orthopædy, that science which embraces the study of every deformity of the human body. In effect, photography bestows upon us lasting impressions of visible deformities, and makes it possible to study at leisure the pictures thus obtained. It also brings to light a host of details which, without it, would elude the most searching scrutiny. Finally, and this is the point which we are trying to make clear, in conjunction with Dr. Oehler, of Frankfort, photography serves to demonstrate the *degree* of deformity, and also to ascertain what progress has been made towards a cure, by treatment which, in the majority of cases, is very protracted.

The method employed to obtain these results is analogous to that of which artists make use when they wish to reduce the size of a picture, with a view to copying it. They subdivide their model into a series of squares, and reproduce these squares to a given scale upon their canvas. The plan is exactly similar when the picture is to be copied by photography. The subject is also divided into squares of a certain size, and it is reproduced, thus divided, upon the photographic plate, in the following manner. Upon a wooden frame, somewhat larger than the model, are stretched a series of threads, at regular intervals, crossing each other at right angles, so as to form a network of squares, measuring, say, 2 centimètres each side.

There are different ways of applying this method. (1) The wooden frame is placed in front of the subject as close to it as possible, and subject and frame are photographed upon the same plate. By this means a picture is produced, divided into squares, each 2 centimètres in extent, so that it is easy to ascertain, by centimètres, the height and width of our model, the distances between its different points, and, consequently, for a physician to make an accurate diagnosis of the extent of the deformity which disfigures the body. However, this process, thus employed, is liable to a slight error. In this way. The frame may not always be placed quite close to the subject; there is almost always a slight space between the two, which causes error. This may, however, be easily corrected in the following manner. Let d = the distance between the frame and the subject. Let D = the distance between the frame and the lens, R = the real size of the subject, and C = the measure given by the frame.

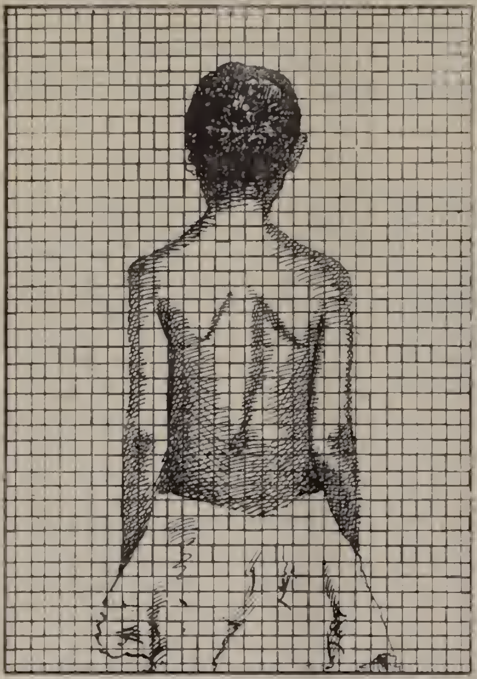

Fig. 1.

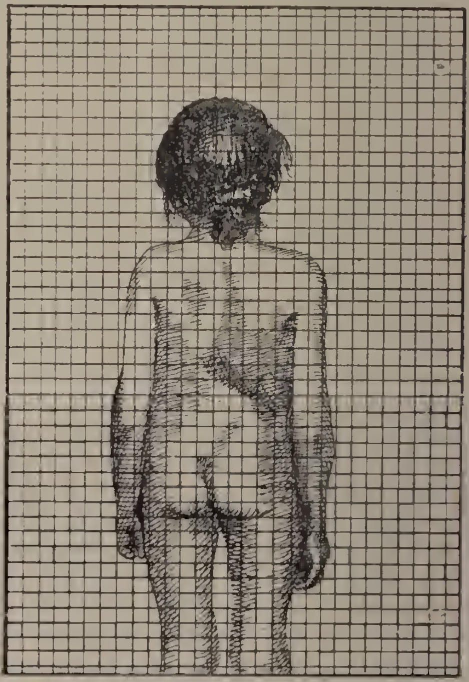

Fig. 2.

PATENT OFFICE

This gives us $\frac{M}{C} = \frac{D + d}{D}$ of which $M = C\left(\frac{D + d}{D}\right)$, so that if d = 10 centimètres and D = 2 mètres, the result is $1^{m}05$. Then M = C ($1^{m}05$). That is to say, it is necessary to multiply the number of centimètres given by the frame by the figure $1^{m}05$ in order to obtain the real measurement. So, in our example of 10 centimètres, there is an error of 5 millimètres!

(2) This error may be avoided by photographing the subject and the frame measurer *separately*. A negative must first be taken of the subject alone, then, on the exact spot occupied by the subject must be placed the frame, of which a separate negative must be taken. If care has been taken to use a proper background, there may be printed, upon the same positive, first the plate, representing the subject, then the other, representing the frame, and a proof obtained, subdivided into squares, and this time absolutely correct.

(3) This process may be further simplified. A plate is made of the frame measurer alone, taken at a given distance from it, and from this is made a diapositive upon glass, or, better still, upon a film. On the other hand, there must be a photo-copy of the subject, taken at any distance, but carefully measured; then, placing the diapositive of the frame over the picture of the subject, the latter is seen through the transparency subdivided into a series of squares. It is of the greatest importance to know the exact dimensions represented by each square, and it is in this that the process detailed above comes to our aid. In effect, it suffices to replace the letters D and d, according to their value.

Let us suppose that the diapositive of the frame has been taken at two mètres, and that the subject has been photographed at $3^{m}50$, then M = C ($1^{m}75$). Now C—that is to say, a square of our frame—represents two centimètres, from which M = $3^{m}50$. Then each square represents $0^{m}035$. When a photo-copy has been obtained, thus subdivided—and it is necessary to measure it with great exactitude—this can be done by means of the magnifying glass, and even of the vernier, which, in this case, would consist of a band of paper equal in length to nine of the divisions of the picture. This band is, in its turn, subdivided into ten parts. It is utilised by being placed against any part of the subject which does not coincide with a line of the square, and the point can be at once seen where a division of the vernier corresponds with a line of the measure, whilst so many tenths are given.

This process is not only useful to orthopædy, but is also available for many other purposes. This is why we have thought it right to notice it somewhat at length. Its application, however, must be strictly limited to the mensuration of objects on the same surface. The accompanying prints from proofs, obtained by the magnesium light, show an application of this method. The frame measurer was divided into squares of 2 centimètres each. It has been placed against the subject, and the whole photographed upon the same plate. As we have already seen, this process may result in slight error, which may, doubtless, be easily corrected, but which, in this case, has not been rectified.

Fig. 1 represents a lateral deviation of the vertebral column, called scoliosis. It is due to an habitual stoop, hence its name of chronic scoliosis. If we examine the picture, we find that the height of the subject from the hips to the top of the head is 59 centimètres. The vertebral column, to the furthest point of the straight line, shows a deviation to the right of 3 centimètres. Besides, it will be seen that the point of the right omoplate is only 4 centimètres from the vertebral column, whilst on the left it is quite 8 centimètres. The left shoulder is a centimètre higher than the right.

Fig. 2 shows us a more marked deformity of the vertebral column. This represents the same lateral deviation called scoliosis, but due this time to rickets. It is to be noted in this picture that the right shoulder is 2 centimètres lower than the left, that the right hand hangs 4 centimètres lower than the left. Besides, the whole body above the hips deviates quite 4 centimètres to the right, &c.—*Bulletin de L'Association Belge de Photographie.*

ROTHERHAM PHOTOGRAPHIC EXHIBITION.

ON Tuesday and Wednesday, February 7th and 8th, the Rotherham Photographic Society held its fourth annual exhibition in the St. George's Hall. Compared with previous efforts, a marked improvement was noticeable in the quality of the members' work displayed and in the general arrangements, while in the matter of public support accorded the promoters must have reason to feel encouraged. Lady Albreda Fitzwilliam performed the opening ceremony in the presence of an influential assembly of townspeople, an appropriate introductory speech being delivered by Dr. Baldwin, the president. Mr. G. W. Chambers, J.P., D.L., moved the vote of thanks to her ladyship, and the Rev. W. Blaseby, B.A., in seconding the proposition, observed that the present exhibition was even finer than the one held twelve months ago. He was glad the Rotherham Society in one department was pursuing a very good course—namely, preserving records of old buildings and old streets which were gradually passing away. He was glad, too, the members were paying some attention to the churches of the district.

The exhibition had many attractive features. Lady Albreda Fitzwilliam, the Hon. Mabel Fitzwilliam, Miss Crossley (Maltby), and Rev. J. Whitehead (Congo missionary, and formerly of Rotherham) each sent photographs. The members contributing were Dr. Baldwin (president), Mr. E. Isle Hubbard, Mr. G. T. M. Rackstraw, and Mr. W. H. Haywood (vice-presidents), Mr. J. Leadbeater (hon. treasurer), Mr. H. C. Hemmingway (hon. secretary), Messrs. W. Firth, W. Mason, W. H. Shephard, A. T. Cocking, J. W. Whittington, J. W. Baker, J. Caseldine, J. Clarke, J. W. Clements, A. Feirns, and J. Sykes. There had been some attempt at "selection," and the result was appreciated. As to processes, it was apparent that the old style of silver printing had been replaced by the gelatino-chloride papers, and various tones, whether intentional or otherwise, were illustrated. Platinotypes were very few in number, and there was not a single specimen of carbon printing. Numerous gelatino-bromides of good quality found places. The loan collection of prints was extensive and interesting. Mr. R. Keene, of Derby, sent a number of choice platinotypes; Messrs. Elliott & Son, of Barnet, exhibited the wave picture; the Autotype Company lent a number of reproductions; and the Great Eastern Railway placed at the disposal of the Society the very beautiful series of "Norfolk Broads" views. Other friends who rendered help were the Eastman Photographic Materials Company, Limited, Messrs. J. Martin & Co., and Mr. J. Leadbeater. Each evening there was a lantern display, the "Peak and Dale scenery" slides of a contemporary being followed by slides prepared by members. Musical selections were also introduced with much appropriateness.

* * *

We are requested to state that the North Middlesex Society has arranged a series of elementary lessons in photography, for beginners, which will take place at Jubilee House, Hornsey Road, N. The hon. secretary, Mr. George Gosling, will be glad to hear from any gentlemen who would like to attend on these occasions, and he will forward full information as to dates, &c., to all who may apply to him.

The Camera Club Conference for 1893 will be held, as usual, in the Theatre of the Society of Arts (by kind permission of the Council), and will take place on the 12th and 13th of April—Captain Abney presiding. On the evening of the 12th the annual Club dinner will take place. There will be an exhibition of pictures at the Club, and lantern-slides will be shown on the evening of the 14th, in the theatre in which the Conference holds its meetings.

Messrs. Kerry & Co., photographers, of Sydney, inform us that they have executed an extensive order (at the instance of the Commissioners appointed by the Government of New South Wales) for the World's Fair at Chicago. This exhibit consists of a number of enlarged pictures illustrative of the country life and general scenery of the Colony, and the pictures were shown at the National Art Gallery of New South Wales before being sent on to Chicago. The pictures include representations of the various operations necessary in handling wool, from the time it is shorn from the skin of its owner to its final delivery into the railway trucks. Messrs. Kerry tell us that it is probable that, at the conclusion of the Chicago Exhibion, this collection of pictures may find its way to London.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, FEBRUARY 17, 1893.

LIBRARY

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All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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THE PHOTOGRAPHIC NEWS.	Yearly.		Half-yearly.		Quarterly.	
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If obtained of a Newsvendor or at a Railway Station	8	8	4	4	2	2
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ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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MARKING TIME.

AT the exhibition of apparatus in connection with one of the Camera Club Conferences was shown a particular form of cheap American clock, and the object of the exhibitor in making this contribution to the show was, as he explained on an attached card, that he had found such a clock very useful in his laboratory, not so much for telling the time of day as for another purpose altogether. The clock gave a very audible tick, and as these ticks occurred four times in every second, the timepiece formed a useful means for marking time in various photographic manipulations. Thus, supposing that the work in hand was the trial of some new form of lantern plate which required under normal conditions an exposure of so many seconds at such a distance from a batswing burner—according to the usual directions—the operator could devote his eyes and hands to the work, while his ears registered the necessary number of seconds as beaten out by the little clock.

This is, as far as we know, the only attempt which has been made to adapt an audible clockwork movement to the work of the photographer, and it really seems astonishing, when we reflect how his every little other want seems to be met, or rather anticipated by the dealers, that this obvious one should have been so far neglected by them. What the photographer wants is a watch which will, on touching a button, give out audible beats having an interval of one second between them, and such an instrument, we believe, would have a good sale.

Of course, there are many rough-and-ready devices by which the ingenious worker may secure the end in view, and it may be this consideration which has caused the matter to be neglected by manufacturers. The simplest thing would be a pendulum of the required length to give one swing per second, and this might easily be rendered audible by means of a rubbing contact with an electric bell circuit. The same pendulum might be made to do the work of rocking a dish if necessary, the electrical attachment being switched out of gear when not required.

Another piece of apparatus, and one which can be found in most houses where music hath charms, is the clockwork metronome. This instrument can be regulated to give audible beats at different periods, and could be, therefore, usefully applied to the work of the photographer.

Some years ago we devised a little contrivance of very simple construction, which calls to mind the method of measuring time by means of the clepsydra. It consisted of a tin canister with a hole in the bottom, to which a pipe was soldered. To the end of this pipe was soldered a union tap, and to this tap was attached a short length of rubber tube ending with a smaller tap. This little cistern was placed on a bracket about six feet above the floor of the room, and underneath it, on the floor, was a zinc bath. The cistern having been filled with water, the upper tap was left open, while the lower one was carefully manipulated until the drip, drip, drip of the water occurred at intervals of one second, which for most purposes is the photographic unit of time. The upper tap was now closed until the contrivance was wanted for use, when the water would at once be made to drip at the prescribed rate without further trouble.

There are many who will say that they are so used to counting seconds, and they can do so with such accuracy, that there is no need for any extraneous help. But on trial these confident ones will generally find that they are not quite as exact as they fancy themselves to be. It is often quite laughable to hear an amateur worker counting off what he calls seconds when making a time exposure, his one, two, three, four more often than not representing just half the time which he innocently believes that he is registering. This is so frequently the case that when we hear a tyro saying, "I gave that or this subject so many seconds' exposure," we take his statement for what it is worth, unless he has relied upon some better guide than mere memory for marking his time.

It is obvious that a man cannot very well carry a pendulum or clepsydra with him upon a photographic outing, and he will not feel the want of anything of the kind if he works with a shutter capable of being regulated to slow as well as quick exposures. But for indoor working with lantern slides, or bromide paper, where fractions of minutes have to be considered instead of fractions of seconds, there is, we consider, a real need for something of the kind. If our surmise be correct the instrument will be forthcoming sooner or later, for demand stimulates supply, whatever be the nature of the particular article called for.

PHOTOGRAPHY IN FRANCE.

BY LÉON VIDAL.

Astronomical Photography — Illustrations of Books by Aid of the Collotype Process—Singular Effect of Mirage — Shutter with Curtain—Coloured Screens—Conference of the Photo Club of Paris—Manganese Lactate—The Employment of Magnesium Light without Smoke —Progress of Photogravure—Approaching Publication of a New Organ of Photography—International Annual of Photography.

MONS. DE LA BAUME PLUVIREL, who is one of the most distinguished of amateur astronomers, has presented to the Astronomical Society of France a very interesting paper, in which he indicates the principal observations to be made at the next total eclipse of the sun, which will take place in April.

The zone of totality will embrace the region extending from Senegal to Timbuctoo, and Mons. de la Baume Pluvirel proposes, on his own responsibility, to visit Dakar, in order to observe and to take photographs of the various phases of this eclipse. He will, above all, devote attention to the corona, which still, to a great extent, remains a mystery to science. In the opinion of this learned man, it is to photography, and to photography alone, that we must look for faithful representations of such phenomena. "The very best drawing," he says, "invariably leaves something to be desired." He goes on to say, "It is, in fact, impossible, in the space of a few minutes, to reproduce exactly a nebulous mass without decided outline, such as the solar corona presents." With regard to photometrical measurements of the corona, he is also of opinion that it is from photography that we must seek for precise results. We note, with lively satisfaction, that Mons. Pluvirel advises the employment of orthochromatic plates for the observation of phenomena in which colour is one of the most important characteristics.

Mons. Mendel, editor of *La Science en Famille*, is about to publish a story bearing the title of "A Canon carried off by the Devil," illustrated by photo-collography. The pictures are interleaved with the text, and the drawings have been executed in a remarkable manner, in the studio of Mons. Roger, at Nancy. This application of photo-collography is by no means new, but it is still rare, as one seldom meets with works of this description. It is much to be wished that similar results could be obtained by photo-typographic process, which would render drawings unnecessary, and entail less than half the work.

Mons. le Commandant Joly shows us a very unlooked-for effect of mirage. This was produced upon a background concealing a window, which window was not visible upon the ground-glass screen, but strangely enough appeared upon the sensitive plate after development. Probably, through the unequal density of the air, the window was reflected *above* the screen. There this reflection came into contact with a curved roof, which acted as a mirror, and the reflection, again reflected upon the subject to be reproduced, was found upon the negative. We think that there is no other possible explanation of this very curious fact.

The phrase "New invention" has not infrequently been claimed for instantaneous shutters of the curtain type, though this species of shutter is, perhaps, the most ancient of all. This tendency to make new things out of old ones would be very convenient if there were no question of patents, that inexhaustible source of lawsuits.

Speaking of curtains we think it would be possible to establish coloured curtains of a permanent kind forming screens for orthochromatic photography. Their substance should be filmy; there might be two, one yellow, and the other red, disposed in front of the focussing screen, in such a manner as to be available for the work in hand, according to the colours required. This idea is worthy of adoption by manufacturers, as it would greatly facilitate the employment of colour-sensitive plates.

At a recent meeting for the exhibition of amateur lantern slides, one single contributor presented himself. This was the genial president of the Photo. Club, Mons. Maurice Bricquet. He secured the medal and well merited it, for his pictures were really remarkable productions. But this absence of competitors proves that the art of lantern-slide-making is still but little cultivated in France, in spite of the favour with which it is regarded. A representative of one of our most important houses for products and materials said to us, "It is astonishing that we have so few customers who care to occupy themselves with this class of work."

Messrs. Lumière Brothers pursue their interesting studies with regard to the sensitiveness of manganese salts to light. A new paper is about to be presented by them to the Society of Photography, which indicates further progress. We shall not be surprised if we soon see some practical illustrations of the uses of manganese lactate.

Mons. Mairet's smoke-box seems to merit some encouragement. The light is produced in the interior of the box, of which the anterior partition is closed by a pane of glass. The powder is lighted by the aid of an exterior attachment. All the magnesium powder being enclosed, the box is carried to a window to be cleaned, the glass is well rubbed, and all is ready for use. There may, perhaps, be a better way, but until it is discovered one can, by this method, get rid of the supreme discomfort and serious impediment to work occasioned by smoke.

The *Journal of Photographic Industry* will appear no more. It will be replaced by *Le Journal des Photographes*, which the Syndical Chamber of Photography is about to publish ; but there are already so many photographic organs, that we greatly doubt if this new venture will realise the expectations of its promoters.

An *International Annual of Photography* is in preparation, under the auspices of the National Union and the International Association. The programme is a most complete one, and there is reason to hope that this publication will constitute a condensed *résumé* of all the most important photographic facts of the year.

THEORIES ON DEVELOPMENT.

BY JOHN H. JANEWAY, M.D.

I LISTENED with much pleasure and great interest to the lecture of Dr. Mitchell, delivered at the last meeting of this Society, and was especially gratified to find that some opinions of mine, held for some time, regarding development were supported by such an able and eloquent advocate. I refer principally to the building down or etching of the film of the dry plate in contradistinction to the building up in the wet plate, by the application of the alkaline developer, which, to my mind, accounts partly for some of the mishaps that frequently occur to all of us. But I think it hardly fair that the Doctor should so summarily have dismissed the photo-physical part of development; especially so in view of the lately very striking discoveries made in regard to light. I refer to its production of sound. It was found, so the report states, that when a beam of sunlight was thrown through a lens on a glass vessel containing lampblack, coloured silks, worsteds, and other substances, this beam of light being cut up by a revolving disc so arranged with slits as to make alternate flashes of light and shadow, sound was heard, the ear being placed close to the glass vessel, as long as the flashing beam was falling on the vessel. By continued experiments a more wonderful result was obtained. A prism being interposed between the disc and the lens it was found that sounds were given with different intensity by different parts of the spectrum, and at times no sound was heard in other parts of the same. The report goes on to say that when the red played on the green, or green upon the red, the sounds were the most intense of all, but when blue was used there was little or no sound given off. The published account of these experiments in the *Art Journal* are not as full or well arranged as one would wish, and we will anxiously await further developments. But from these experiments, if correct, it will be necessary to give to light other powers than have been conceded to it, and will considerably modify, if not change entirely, the theories of the formation of the latent image as now held. It is well known that in regard to the formation of the latent image and its subsequent development that there have been three classes of investigators and defenders—two of these classes holding very widely different views on the subject—the photo-physical, who claim that the action of light by its dynamic force so arranges or disarranges, as the case may be, and so made less stable, the molecules of silver held in the gelatine film as to enable the developer to bring forth and render visible the image unseen until action has taken place.

The photo-chemical, who claim that it is a tolerably certain fact that under the action of light the haloids of silver, the bromides, chlorides, and iodides have a tendency more or less powerful to return to the metallic state, which tendency is promoted and made permanent by the action of developers which are always reducing agents; that is, they are substances which are able to reduce the soluble salts of silver to the metal state. But will either of these two theories account satisfactorily for all the changes that take place from the time of exposure to the fully developed plate?

The third class are in favour of a combination of the two classes, or claim a mechanical and chemical combination, as set forth thus. The dynamic action of the wave of light, setting free the invisible particles of silver in the granules which form the emulsion on the plate, and these nuclei of metal acting as centres upon which the chemical action may take effect and proceed to the end. We know that some agents have the power of starting an action, and that others, though not able to start the act, have the power of continuing it and completing it. Another theory is that the development of a negative may be effected in one or two ways. First : the new compound may possess an attractive force. The action of light on sensitive compounds of silver tends to cause the formation of a substance capable of attracting the metal of which it is a salt when slowly deposited from a solution. This first deposit is capable of attracting more of the metal, and in this way an image is gradually built up. This is the theory of the physical development of the wet collodion plate. If the theory of the dynamic power of light can be proved, it can also be used as a theory for the development of the dry plate. Second : the image may be the result of the reduction, more or less complete, to a more elementary state of the altered compound when treated with certain solutions, in which state it may have the same attractive power as before. This is the *rationale* of all alkaline development.

But to return to the discoveries previously mentioned, and subsequent ones following rapidly, as they will. If correct, they will of necessity displace, to a great extent, if not entirely, the vagueness that now surrounds the words "actinic force," "dynamical," and "mechanical" powers of light—words that are too frequently used to conceal our ignorance or to impress upon the minds of others an erroneous estimate of our own wonderful knowledge. If a wave of light is capable of producing sound it must have ponderance, a power to disturb an equilibrium, to disrupt and to separate, in fact, a dynamic power in many ways. By dynamic power we mean the power inherent in light to strike, to move, arrange, separate, congregate, disrupt, build up, or destroy any of the elementary substances, and in many cases their compounds upon which it acts.

The very disturbances which these waves of light are subject to in passing from and through different media must of necessity cause tho generation of an immense amount of energy, and when we call to mind the immense velocity of these waves of light and their unaccountable number, we cannot as yet estimate the force contained in a single ray, or the power it exercises upon any sensitive substance it impinges on. It has been repeatedly denied that light produces any separation of the elements in the formation of the invisible image, such as occurs when a visible image is formed by its action. But where is the proof for this assertion? I have as yet been unable to find it, though I have sought for it diligently, and am forced to believe it to be the *dictum* of one, repeated by others, as true. The fact is, that, surrounded by light, we have all the time been wandering in darkness. Cannot the occurrence of halation or solarisation be explained if we give due credit to the dynamic power of light, as defined? By halation we mean not only the havoc it plays on a window in an interior, but also with a landscape, the foliage becoming blurred, losing its true tone value, and thus becoming both inartistic and unscientific. We have been taught that the reflection of light from the outside or back of the glass or transparent support is the cause, and to prevent it we must back the plate with some opaque substance in optical contact. This explanation and teaching is true, as far as it goes, with our rapid plates and films. But why do these returning rays exercise this power and produce this effect if they have not hammering force, so to speak, upon the already disturbed molecules of silver in the film? A plate has recently been introduced in England, called the Sandell plate, that is said to be entirely free from a chance of this mishap. It is coated by two or three emulsions of different sensitiveness, and to my mind this tells the story. The first coat is decidedly less sensitive than the others; in other words, the light power is used up by the time it reaches the glass, and there is no reflection.

The objections raised against those plates, in the main, consisted of the extreme length of exposure said to be necessary, but even here "the doctors disagreed." Wuestner, of Jersey City, has very much improved the Sandell plate. His first substratum was a slow orthochromatic, and upon that spread one or two emulsions of high and highest sensitiveness; working upon the premises that halation occurred less with dyed than plain plates. Since then he has also prepared another brand, simply with plain bromide of silver emulsions of different degrees of sensitiveness. It is said that either of these plates work rapidly and can be safely used for instantaneous exposures, and that halation has been reduced to *nil*. The reversal of the image is evidently caused by the same action of light as in halation, but that action has ceased before halation is produced.

Fog.—The veiling and the ultimate production of fog can be accounted for, if we agree that the dynamic action of light causes the molecules of silver to be so arranged and freed from their environment in the gelatine film, so that the latent image is formed and by development made visible. All goes well if there are plenty of molecules of silver for the developer to act on. But let the film be weak in especially the iodide of silver, we find at a certain point the developer stops its work. An additional quantity of the alkali is added, the work begins again, then stops. More alkali is added to force the developer. Suddenly a veil appears, followed quickly by a fog that destroys our work. You may ask me for my explanation of this destruction. The plates most subject to fog are those known as "rapid." The film is thin and very delicate. Bromide of silver is in excess, the iodide much less than normal. Whilst the light was so arranging the molecules of silver to form the latent image it doubtless disarranged and partly separated some adjacent molecules not needed for the image from their weak support. The development ceased because all the silver of the image was used up, or nearly so. More alkali, the accelerator, caused the using up of the remaining molecules. An additional dose of the alkali started the pyro or reducing agent in search for more material to work upon, against the adjacent only partly protected molecules, and then—well—you all know what happens when a lighted match touches a pile of gun cotton.

It has been with much trepidation that I have presented these, it may be, crude thoughts to you, when I remember that they have been addressed to many at whose feet I would gladly sit for instruction in the science and art which I believe we all love. But, having passed the Rubicon, I crave your kind indulgence for the thoughts advanced, though they may be at variance with your own opinions.—*Photographic Society of Philadelphia.*

* * *

TORQUAY PHOTOGRAPHIC EXHIBITION.

THIS exhibition, which is held at Iredale's Art Gallery, February 14-18th, and was duly opened by the Mayoress of Torquay, Mrs. Platt, on Tuesday morning, is certainly a credit to the local society, which can boast of but two years' existence. It has received the patronage of eighty-one exhibitors, with a total of about 600 pictures. Amongst the better-known workers, the following are represented: W. H. Banks, W. C. Beetham, S. R. Brewerton, T. M. Brownrigg, W. J. Byrne, A. Debenham, C. Court Cole, J. Dore, A. R. Dresser, F. W. Edwards, J. H. Gear, A. W. Gottlieb, C. Job, Chas. Knight, E. G. Lee, Major Lysaght, T. H. Morton, C. H. Oakden, W. B. Post (U.S.A.), E. Scammell, W. Tavener, A. G. Tagliaferro, R. Terras, G. E. Thompson, W. M. Warneuke, Van der Weyde, H. Yeo.

The best classes are Landscape, Marine, Portraiture, and Lantern Slides. In the former the contest for the premier position, between Mr. Dresser (Aylesford) and Mr. Tyser (In Dovedale), was so severe that the judges in the end declined to make a distinction, and bracketed them equal.

The Lantern-slide Class, with its twenty-four sets, is undoubtedly the best of its kind that we have ever seen. The general average was high—there was not a single poor set—and the judges certainly had their work cut out to distinguish between them.

With regard to the awards, the judges have neither scattered medals indiscriminately nor have they withheld too freely. One difficulty they met with, no doubt, was that in the smaller classes the work was good enough for recognition in spite of the few entries.

The Members' Classes are but poorly patronised. It is not so much that the work is poor, but that the entries are few. It looks as if the idea of competition had frightened some of the members. One picture, however, stood completely away from all the rest—viz., "Solitude, Blea Tarn," by the Hon. Sec., Mr. Howell.

Amongst the exhibits marked "Not for competition," the Woodbury and Eastman Companies have some excellent large work, and the Paget Prize Plate Company show a large frame of print-out opals of great brilliancy and depth of tone. Van der Weyde's pictures of the Princess of Wales (life-size) and the Misses Dene will prove of great interest to the local visitors on account of their size and general excellence. Two local photographers also show considerable promise, Messrs. Dinham and McLanachan. The latter gains a medal in the Marine Class, a creditable win against such men as A. R. Dresser, W. H. Banks, A. Debenham, &c.

The gallery in which the exhibits are hung is eminently suited to the purpose; all the light being derived from the top, the various pictures are seen to the best advantage.

The awards made by the judges, Messrs. Sydney Morrish, Henry Sturmey, and Walter D. Welford, are as follows:—

MEMBERS' CLASSES.

Architecture—

Silver Medal	Withheld.
Bronze Medal	Dr. Pollard.
Certificate	Withheld.

Genre and Portraits—

Silver Medal	Withheld.
Bronze Medal	Major Phillips.
Bronze Medal	J. C. Dinham.
Certificate	H. Mayne.

Landscape—

Silver Medal	H. C. Howell.
Bronze Medal	G. Barnston.
Certificate	Withheld.

Lantern Slides—

Silver Medal	Withheld.
Bronze Medal	G. Barnston.
Certificate	Mrs. G. M. Frean.
Certificate	C. Underwood.

Marine—

No entries.

Hand Camera Work—

Silver Medal	Withheld.
Bronze	H. C. Howell.
Certificate	Dr. Pollard.

Enlargements—

No entries.

OPEN CLASSES.

Architecture—

Silver Medal	F. W. Edwards.
Bronze Medal	C. Court Cole.
Extra Bronze Medal	C. H. Oakden.
Certificate	Jos. Chamberlain.

Genre—

Silver Medal	Robt. Terras.
Bronze Medal	A. G. Tagliaferro.

Landscape—

Silver Medal	G. W. Tyser.
Silver Medal	A. R. Dresser.
Certificate	T. M. Brownrigg.

Lantern Slides—

Silver Medal	W. Taverner.
Bronze Medal	W. C. Beetham.
Certificate	Edgar G. Lee.
Certificate	G. E. Thompson.

Marine—

Silver Medal	W. B. Post.
Bronze Medal	J. L. McLanachan.
Extra Bronze Medal	H. W. Bennett.
Certificate	John H. Gear.

Portraiture—

Silver Medal	W. M. Warneuke.
Bronze Medal	H. Yeo.
Extra Bronze Medal	W. J. Byrne.

Hand Camera Work—

Silver Medal	E. M. Stone.
Bronze Medal	Withheld.
Certificate	Chas. Job.

Enlargements—

Silver Medal	Withheld.
Bronze Medal	F. W. Edwards.
Bronze Medal	A. R. Dresser.

Ladies—

Silver Medal	Withheld.
Bronze Medal	Miss Ackland.
Bronze Medal	Miss Truscott.

* * *

AN ARTISTIC MAP OF SWITZERLAND.—Mr. Stanford has just published a map of Switzerland on the scale of eight miles to an inch, which reflects great credit on English cartography. It has evidently been copied by photographic process from the fine survey map of Switzerland, transferred to copper, and printed in a delicate umber tint. It conveys an excellent impression of the physical configuration of Switzerland, its lofty mountain ranges, deep valleys, glaciers, and spacious lakes. Railways, towns, and other features are also shown, though the special edition has no names, and thus the beauty of the hill-shading is not marred. As a cartographic picture of the most picturesque country in Europe, the map leaves nothing to be desired. The mechanical work has been done with great taste and delicacy.

THE WIDE ANGLE CLUB.—II.

PUNCTUALLY at eight o'clock the President struck the table with emphasis and a hammer. "Gentlemen," said he, "to business: let us prove ourselves worthy of the town. I, therefore, call upon——"

He was interrupted by Mr. Hawkeye, who said he wished to rise to a point of order.

The Chairman: "Good gracious, upon what, sir? We haven't started yet."

Mr. Hawkeye: "That's just what I want to speak about. There ought to be some revision of the reports of this Club's doings that are to appear in the photographic papers. I would like to know"—and here he glared at the Hon. Sec.—"who wrote the disgraceful report of our last meeting which appeared in the Photographic News, and made me out such a perfect fool."

The Hon. Sec. suggested to the Chairman that it was a matter that ought to come before them later on.

The Chairman: "No, sir; as chairman I am impartiality itself, and I also have a personal bone to pick with that gentleman. I think it is a question we ought to settle right off."

One member was heard to remark to another, "I had a bone to pick myself the other day, out of one of his confounded sausages."

The Chairman (sarcastically): "I suppose none of the *gentlemen*," with considerable emphasis on the word, "will admit writing that report, and therefore I propose that in future no reports of any of our meetings shall be sent, unless they meet with my approval, as witnessed thereby by my counter-signature."

This was seconded promptly by Mr. Brewer, and carried without a single dissentient. It was further agreed that it should take effect at once. Therefore the reports in future will not be verbatim. [Thank the gods!—Ed. Photographic News.]

The Hon. Sec. reported that the Council had drawn up a code of rules which were in the printer's hands and would be forwarded to each member in the course of a week; that since the last meeting eighteen gentlemen had joined the Club, and one lady intended doing so, bringing up the total to twenty-three; that the special buttons each member was to wear to show he was a member of this celebrated Club were in course of manufacture; and, lastly, that several papers had been promised, and a fixture card would be issued as soon as possible.

The next business was the paper upon "Medals: how to get them, who gets them, why they do and they didn't oughter," by Mr. Honmention. He touched upon the artistic conception apparent in an otherwise inartistic imagination, and said that many a wet brook was spoilt by the red tone of the print, which signified dryness. With regard to views of wintry scenery, snow or frost on the trees did not signify winter at all, according to the Rev. C. D. Sheepbel. He next dealt with focus, and said that whether the principal object was a medal or not, it ought to be in correct register with the ground glass. He concluded by urging everyone to strive after medals, using these words, which are worthy of permanent record: 'Strive for medals, get 'em, and stick to 'em!"

The discussion that followed was very interesting because amongst some of the newer members were old medallists.

Mr. Putout thought that in striving after medals all sentiment and morality should be placed aside. So long as the judges gave the awards it must be considered a fair fight; and, therefore, if it was convenient to him to send prints that were debarred by some confounded rule or other, he did so promptly. The point was to win, and deceiving the judges was fair warfare. He advised members, if, after an award had been made to them, it was withheld by the Society, to promptly threaten legal proceedings. Send a solicitor's letter if the threat is not sufficient; it would only cost, at the outside, 3s. 6d.

Mr. K. Y. Jackson said that no medals ought to be withheld. His view was that if certain prizes were offered, they were an attraction to the show—they induced people to send prints. Now, if afterwards some of these prizes were withheld, it was deliberate fraud. It would, moreover, come within the Lottery Acts, being really a missing medal competition. He thought perhaps a county court summons would be easier than an action for obtaining goods under false pretences.

Mr. Arch thought that medals were a nuisance. He never got any, and could not see why other people wanted them.

Mr. Proudlock said that all medals ought to be arranged so that they could be worn on special occasions—such as state functions and annual dinners of clubs. One paper gave clasps, which was a step in the right direction.

The hammer of the Chairman at this point sounded, and he announced that he must stop the discussion, as it was exceeding the limits of time allowed; and, after thanking Mr. Honmention for his excellent paper, he announced that at the next meeting there would be no formal paper, but, as a brand-new question-box was in course of construction, it would be utilised. Members were asked in the meantime to write out questions.

◆

CORRESPONDENCE.

A CORRECTION.

Sir,—In Table 2 of our Exposure Table a slight printer's error has occurred, and which we regret we overlooked. The three first columns, headed respectively *f*/6, *f*/8, and *f*/11, should have been headed *f*/8, *f*/11, and *f*/16.

Thanking you in anticipation for inserting this correction.

Park Road, Barnet, Herts. Elliott & Son.

MR. DEBENHAM.

Sir,—Mr. Debenham seems to be making it one of his agreeable missions in life to object to anything I may say about the Photographic Society. The Society is happy in so unscrupulous a defender. I have already done this gentleman too much courtesy, and myself sufficient indignity, by replying many times to his vindictive half-truths and untrue assertions, and decline to aid him further in his bid for notoriety by opening another correspondence with him

The points he thinks he makes in his letter, in your last, have been sufficiently answered several times, but if any older member of the Council thinks I have been untruthful or unjust, I will argue the matter with him, tired as I am of the many repetitions I have been compelled to make on this subject. H. P. Robinson.

FILLEBROOK ATHENÆUM EXHIBITION.

Sir,—A point of some importance has arisen in connection with the rules of the above exhibition, and I shall be obliged if you will kindly allow me to communicate the decision of the committee to your numerous readers who are interested.

The question was · "Can one exhibitor take more than one medal?" and in reply I beg to say that one medal only may be awarded to an individual exhibitor, but it may be for a single exhibit or for a series, as the judges may determine.

May I take this opportunity of asking intending competitors to send in entries as soon as convenient, to save a rush of work at the last? Joseph W. Spurgeon.

Leytonstone, Essex, Feb. 14th, 1893.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

1,972. James Henry Newman, 7, Royal Exchange, London, "The 'Biunio' Photographic Lens."—*30th January*, 1893.

1,991. Harold Dennis Taylor, 20, Bootham Terrace, York, "An Improvement in Photographic Lenses; also applicable to Microscope and Lantern Objectives."—*30th January*, 1893.

2,035. John George Goosey, 24, Southampton Buildings, Chancery Lane, London, "Improvements in Photographic Cameras."—*30th January*, 1893.

2,202. James Eglinton Anderson Gwynne, Brook Street, Holborn, London, "Improvements in Photographic Printing by Electric Light and in Apparatus therefor."—*1st February*, 1893.

2,226. George Reynolds Allely, Alfred Ernest Allely, and Thomas Edward Aston, 128, Colmore Row, Birmingham, "An Improvement in Photographic Cameras."—*1st February*, 1893.

2,288. Samuel Dunseith McKellin Mellor, Derbyshire, "Improvements in Photographic Cameras and in Apparatus connected therewith."—*2nd February*, 1893.

2,328. Henri Louis Morel, Newcastle Chambers, Angel Road, Market Place, Nottingham, "Improvements in Photographic Studio Accessories."—*2nd February*, 1893.

Specification Published.

22,633. *December 9th*, 1892.—"Photographic Developing Dish."—H. Rayner, 27, Francis Street, New Leeds, Yorkshire.

The improved dish comprises an inner dish made of glass in one piece, and properly annealed, near or at one corner of which is a projecting lip, open above, its upper edge about level with the upper edge of the inner dish. This lip is for receiving the developing liquid and for emptying the same therefrom. A vertical inner wall of glass lies in front of the lip inside the dish, so as to leave a passage between it and the wall for entrance or exit of the liquid from the lip, this screen being intended to intercept the actinic rays of light which might enter at the lip. The whole or only the floor and screen of the inner dish may be made of ruby or other non-actinic glass. The inner dish aforesaid is enclosed within an impervious frame of sheet metal, varnished or japanned, which covers in the sides of the dish, its upper face being cut out at the centre, so as to leave a projecting flange all round to receive a sliding cover of non-actinic glass which may be slid into a slot in the frame. The central hole in the upper face of the frame is provided with a hinged cover for closing it, and the said frame has also a hinged cover which may be used to close the lip aforesaid. The frame does not extend far under the bottom of the glass dish, but leaves a free space thereunder, so that the plate or film in the dish may be viewed by either reflected or transmitted light when under the process of development or other treatment.

Printed copies of the full specification of the above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

PROCEEDINGS OF SOCIETIES.

London and Provincial Association.

February 9th.—Mr. A. Haddon in the Chair.

The Chairman said that the lecture on "The Lens," to be given that evening by Mr. J. Traill Taylor, was the first of a series of papers on technical subjects which together would form a handbook of photography—a handbook more complete than any that could be written by one man, as each subject would be treated by one specially versed in the particular direction.

Mr. J. Traill Taylor, who had a large number of lenses to illustrate his remarks, said that on this evening what would be said would rather be in the direction of clearing the way for the paper which would be gone on with on another occasion. The earlier opticians had much to contend with in the kinds of glass then obtainable. Specimens of dark green crown were shown, worked into photographic lenses, which, nevertheless, rendered good service when photography was young. A lens of large aperture made very early by Tom Davidson, of Edinburgh, produced some charming pictures. A Swiss named Guinand had made a great advance in the manufacture of optical glass, and eventually was principal manager at the now well-known works of Chance. Except, however, for the slowness caused by colour, a lens (shown) made before Petzval's would produce work equal to any of the present day. The lens known as the orthoscopic was one which he thought was the model, with certain modifications, of the lens of the future. It was soon found, after its introduction, that it was capable of giving with one instrument a considerable range of focal length, according as the elements were more or less separated, and that without the extension of the camera necessary with other lenses, as the focal point was outside the lens altogether. To eliminate the distortion of the orthoscopic lens, which was of the opposite kind to that of an ordinary single lens, he had used a thick plate of glass which deflected the marginal rays more than the central rays. In the year 1869 he had been led to extend the principle of the orthoscopic lens by using a negative lens of greater power than the positive front. This he found to his hand in the opera-glass, using one of what is called the twelve-lens form, and separating the lenses slightly more than the original fittings permitted. The image might thus be rendered quite telescopic. As a convenient mount for a lens of this kind, he showed a focussing eyepiece, with a screw adjustment, for altering the separation of the lenses. It was at first thought that the achromatism of the opera-glass would not be correct for photography, but practically it was about correct. This use of a lens was published by him eighteen years ago, in the *British Journal of Photography*, and practically as large a picture as might be desired could be taken with it. As thus arranged it would give an image as large as, with an ordinary lens, would require a camera extension of ten feet. Any opera-glass would do, provided the eyepiece could be separated a little more than the original mount permitted. With this arrangement he had photographed the sun with an image three inches in diameter. The distinction between the orthoscopic and the opera-glass modification was, that in the latter case the negative lens was more powerful than the positive. Single lenses of simple uncorrected form (Meniscus spectacle glasses) were shown, and specimens of stereoscopic work that had been executed with them were much admired. It was explained that as they had been used with a hand camera and fixed position of the plate, the difference of chemical and visual focus was not important, as the lens was fixed at the chemical focus. If, however, focussing had to be performed, the lens would have to be approached to the plate for from a fortieth to a thirtieth of the visual focus.

Drawings were also shown of a lens made by Goddard, which could give images free from distortion, although used as a single lens, with the stop in front, and of a similar more recent lens by Dallmeyer. With the latter marginal definition was improved probably by the adoption of the Grubb and Steinheil method of correcting.

The Morison lens, with plano-convex crowns, was shown, and other lenses, of somewhat similar character, described, and suggestions made for home work with lenses of this and of other simple kinds.

The **Chairman**, in thanking Mr. Taylor, said that the suggestions thrown out would, he hoped, induce members to do some experimental work.

South London Photographic Society.

Ordinary Meeting held at Hanover Hall, Hanover Park, Peckham, on February 6th.—The President, Mr. F. W. **Edwards**, in the Chair.

After the announcement of additions to the library, Mr. T. R. **Dallmeyer** read a paper on "The Comparative Advantages of Wide Angle and Tele-photographic Lenses." Considerable interest in the subject was shown by the members present.

Three new members were elected. Attendance, 37.

Putney Photographic Society.

An ordinary meeting was held at the Society's Rooms on Monday, February 6th, Mr. **Faulkner** in the chair. One new member was elected.

The programme of the evening was a lecture and demonstration on "Lantern Slide Making," by the Paget Prize Plate Company, of Watford.

Mr. **Woodbury**, who represented the company, said he understood that making lantern slides by contact had already been demonstrated before the members earlier in the season. He would therefore confine his remarks to the manipulation of the new printing-out plates, and to making slides by reduction in the camera with such apparatus as every photographer already had in his possession or could readily make for himself. He would also show the method of working the printing-out opals, recently introduced by the Paget Company, which was very similar to that required for their printing-out lantern plates. He said that the treatment of the plates and opals was essentially a daylight process. The printing was generally done by daylight, the plates being placed in the frames and afterwards examined in a subdued light; density being readily judged from the back when one half of the frame was opened in the usual manner.

The opals and plates are printed somewhat more deeply than will ultimately be required. A little practical experience will soon enable the operator to judge the correct density. The same rules apply as to silver prints generally; thin negatives should be printed in a weak light, hard ones in sunlight. Mr. Woodbury stated that good results could be obtained on these plates from negatives with a lack of pluck which would place them out of court with most of the ordinary rapid brands. It is almost unnecessary to add that this is a great desideratum for those who have developed their negatives with a view to obtaining soft and delicate prints, or who may have failed to get the necessary density when using some of the many new developers. Such weak negatives have generally been disappointing for lantern work, and a plate producing slides which will compare favourably with the prints taken from the same negatives will be hailed with delight by many good workers, perhaps more particularly among the growing ranks of those who devote themselves to stereoscopic photography. The size of stereoscopic negatives is convenient for making slides by contact. Each negative also gives two chances against spots, scratches, and other defects, as a slide may be made either from the right or left half. The prints composing the stereogram should, however, be soft, and of as a delicate a gradation as possible; this requirement has hitherto, to some extent, militated against the successful use of stereo negatives for lantern work, as lantern plates generally give the best results with rather plucky negatives inclined to be hard when printed in silver. When printed out the opals and plates are ready for toning. Mr. Woodbury said that any of the usual baths will be found to answer. The company issue the following formulæ:—

Combined Toning and Fixing Bath.

No. 1 Stock.

Hyopsulphite of soda	20 ounces.
Alum	5 ,,
Sulphate of soda (not sulphite)	14 ,,
Water	1 gallon.

Dissolve the hypo and alum, each in about one quart of hot water, mix, and then add sodium sulphite, which has already been dissolved, making up to one gallon, with remainder of water. The mixture should be left for some hours, to allow precipitate to settle, when the clear solution may be poured off, or filtered, and is then ready for use. It will keep indefinitely.

No. 2 Stock.

Chloride of gold	15 grains.
Acetate of lead	64 ,,
Distilled water	8 ounces.

Dissolve the acetate of lead in the water, and add the gold. A heavy precipitate will form, which should be shaken up when any is to be poured out; it re-dissolves when added to No. 1 stock. For use, mix 8 ounces of No. 1 with 1 ounce of No. 2. When this bath is used the plates and opals should *not* be washed *before* toning.

Separate Toning Bath.

Sulpho-cyanide of ammonium	30	grains.
Chloride of gold	2½	„
Water	16	ounces.

The plates and opals must be very thoroughly washed for, at least, 15 minutes in running water. to ensure even toning. For deeply printed images Mr. Woodbury recommended the combined, and for correctly or slightly under-printed pictures, the separate bath. He also pointed out that, in the combined bath, toning proceeded very evenly, and could be stopped at any stage, care being taken, if the plate had not been in the bath at least 15 minutes, that fixation should be completed in a separate plain hypo bath. Unless very carefully washed, prints would tone unevenly in the separate bath up to a certain point, and it might be found necessary to carry the tones somewhat further than intended; for warm tones, therefore, the combined bath would be preferable, and the separate for the colder shades. He then proceeded to print some lantern plates and opals, by means of the Platinotpye Co.'s oxy-magnesium lamp, the operation being fully performed in a few seconds. He then toned some of each in the combined and separate baths, the manipulation throughout being of a simple nature, and such as every photographer is accustomed to when toning silver prints. The results were highly successful, and they as well as a number of finished lantern plates and opals with glossy and matt surfaces, were handed round, and greatly admired by the members. Mr. Woodbury then proceeded to make a lantern slide by reduction on the Paget Company's rapid lantern plate. The negative was half-plate size, and of average density, and of a good colour without yellow tinge. It was placed in a suitable frame placed at right angles to an ordinary camera, which could be moved longitudinally on a board fitted with guides. The image was focussed by means of a couple of candles placed behind the negative. The lantern plate was put into the dark slide, and a ground glass placed about two inches behind the negative in order to diffuse the light. The lens worked at *f*-10, and twelve inches of magnesium ribbon was burned at a distance of about six inches from the ground glass, being moved about as evenly as possible during burning. The exposure proved to have been correct, and the slide was in every way successful. Elaborate apparatus was, therefore, unnecessary, the chief point being that the light from the burning ribbon should be screened, so as not to enter directly into the lens.

It was announced that on February 20th a demonstration of the development of rollable films would be made by the Eastman Company. The meeting will take place at eight p.m., at Charlwood Road.

Hackney Photographic Society.

Meeting held Tuesday, February 7th.—Mr. R. Beckett in the Chair.

Mr. E. L. Morgan gave a demonstration with amidol. Its power as a developer has been so well advertised that it is unnecessary to go very fully into particulars of demonstration. Instances were given where, by modification of amidol, plates, having received exposures of one, two, three, and ten seconds on some subjects, were successfully developed. It was necessary to carry on development longer than usual owing to the absence of the colour usual in pyro-development. The Hon. Sec. asked whether the cartridges were any special preparation, but was informed they only contained sulphite of soda and amidol. Any alkali could be used; and, in answer to a question, the lecturer said carbonate of ammonium could successfully be used with it for lantern slides.—Mr. Sodeau liked citrate of soda for over-exposed plates. Amidol could be used dry like pyro owing to its easy solubility. A number of plates could be developed in the one solution.—The Hon. Sec. said he had recently developed twelve bromide papers and one lantern plate, and the solution seemed to be good enough for more. He preferred the formula given by Mr. Dresser.—Mr. Roder asked whether amidol would develop Morgan & Kidd's papers.—Mr. Morgan said he had not tried himself, but felt satisfied they would.—Two plates of street scenes, having received $\frac{1}{25}$ sec. at *f*/8, and taken this month, were then developed and bromide papers exposed.—The Hon. Sec., in proposing a vote of thanks, said he used amidol some long time since, but had a difficulty in getting density. He had, however, again tried, and was very favourably inclined to it.—Mr. Morgan said he used to use pyro before, but now gave it up in favour of amidol.—Mr. Farmer was nominated.—The biunial lantern won by the Society was then set up, and the slides, which were sent in to the *Hand Camera and Lantern Review* in the competition, put through by the Hon. Sec. and Mr. Nunn.—The attendance was very large, and, being a ladies' night, the fair sex were well represented.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

XLV.—Clearly an error. We take it that the author intends the formula to read: "Iodine ¼ ounce, dissolved in alcohol 10 ounces." A copy of the index shall be sent to you by post.

Isaac C.—As you refer to Abney's "Photography with Emulsions," we may suggest that it would be a mere matter of arithmetic to calculate, with the help of that book, the amount of silver required for any weight of gelatine which you may propose to use. From the same source you will be able to obtain the correct proportions to employ of the different bromides named in your letter.

C. H. K.—Thank you for sending the pictures. They are admirable as photographs, and very interesting to us on account of their far-off origin.

H. J. P.—You can fix as many prints in the solution as the dish will comfortably hold; but you must take care to use fresh solution for every batch of pictures.

M. H.—Instead of a cutting diamond use one which has been set for writing and figuring on glass. A special kind of ink, prepared with fluoric acid, is sold for writing on glass, and this may suit your purpose better than the diamond.

Maxted.—For drying a few gelatine plates you may use a box containing a dish of well-dried calcium chloride. Sulphuric acid, poured on lumps of coke, and kept in a dish, will absorb moisture in the same way, but it has obvious disadvantages.

Terrapin.—The plan you propose for vignetting negatives in the camera during the time of exposure is an old one, and we will try and look up the reference for you if you care to have it.

Showman.—The assertion that "lantern slides, made on dry plates, are not so good as wet collodion ones," is a matter of opinion. If you will make an appointment at our office we will show you slides by half-a-dozen different processes, including a wet-plate one, and you will find it impossible to tell which one that is.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1799. FEBRUARY 24, 1893.

LIBRARY

NOTES.

THE World's Fair at Chicago seems to be omnivorous in the attractions it is securing for the multitude of visitors which will, in a couple of months, flock to its doors. Mr. Muybridge, the pioneer worker in the science of animal locomotion as illustrated by photography, is to give a series of lectures on his favourite subject, in the Zoopraxographical Hall of the Exhibition.

THE illustrations are to include a selection of consecutive phases of movements by men, women, dogs, cats, wild beasts, and birds, photographed while running, jumping, boxing, dancing, galloping, trotting, kicking, flying, or engaged in other muscular exercises. The images will be projected by an electric zoopraxiscope on a large screen.

MR. JOHN E. LEWIS, of Ansonia, a skilful amateur photographer, happened to be exposing a plate one night last month in the hope of securing an image of Holmes' comet. This attempt was unsuccessful, but, by a piece of good luck, a fine meteor traversed the sky at the time, and is shown in the negative as a broad band "about the breadth of a lead pencil." The meteor was of unusual size and brilliance, and was visible over the entire district between New York and Boston.

IT is not wise sometimes to have your photograph published. A trade paper had reason, a twelvemonth ago, to warn firms in the industry it represents against a certain person. The person in question disappeared, but it was suspected he was still calling upon firms in the trade. A week or two ago the man's portrait appeared in a rival organ, but under an alias. This was the opportunity of the paper first mentioned, and its exultation in being able to point out, not only the identity of the obnoxious person, but his features also.

THE photographs of a public man form a pretty good index as to whether people have him in their minds. It would appear to be very difficult to get a portrait nowadays of Lord Beaconsfield; at least so we learn from the following, which we take from the University magazine known as the *Isis*. A correspondent of the periodical in question says:—"I recently had occasion for photographs of Lord Beaconsfield and Mr. Jesse Collings. I accordingly ordered them from a leading firm of Oxford photographers. The girl replied, 'We shall have to get you Lord Beaconsfield printed specially, but we will send you up Jesse Collings in the morning. Would you like her in Ta-ra-ra-boom-de-ay?'" If not *vero*, this is certainly *ben trovato*.

WE have before remarked upon the unfortunate competition which exists among several of our pictorial publications in the matter of reproducing exhibition works, which can now be so easily brought about by means of photographic process blocks. To find the same picture reproduced in half a dozen different papers is a tax upon buyers.

BUT it is whispered that this condition of things is to prevail no longer, and that the question of permitting reproductions of pictures in illustrated papers and descriptive catalogues is being seriously considered in the studios.

ARTISTS feel that, in a manner, these reproductions advertise their wares and bring their names into prominence. On the other hand, their customers are likely to think less of a painting which has been made common to all. The problem would be best solved, perhaps, if the reproductions were confined to pen and ink sketches of the pictures, *à la* Blackburn, leaving half-tone blocks severely alone.

Many photographers seem to be under the impression that it is not advisable to use platinotype paper which is more than a few weeks old. This is a mistake. A case was recently brought under our notice by an experienced worker with the process, in which prints—in some respects better than those taken with the same batch of paper when first received—were obtained with paper which had been no less than ten months in stock. It need hardly be remarked that the paper in the meantime had been most carefully protected.

It came out in the course of an inquest last week that a carpenter at Chelsea has been trying to solve the problem of photography in colour, at least, so he accounts for having a collection of bottles containing prussic acid, arsenic, strychnine, chloroform, &c. He had, he said, "tried to compete for the £2,000 prize offered by the South Kensington Museum for the invention of colours in photographs, and he also used the poisons for experiments in electric lights and electric bells."

These are certainly curious chemicals with which to attempt experiments in photography, and what on earth they can be used for in connection with electric lights and electric bells passes the wit of man to understand. This same man, by his own account, while experimenting several years ago, "had blown the ceiling off his room." Possibly the greater portion of his brains escaped on the same occasion.

The accounts given by travellers of the prisons of Siberia vary considerably. According to some they are hideous centres of oppression and cruelty; according to others they are abodes, if not of liberty, at least of privileges. The truth probably lies between these two extremes. Any way, the description, by Mr. Joseph Price, one of the special artists of the *Illustrated London News*, of a prisoner he visited, who was allowed to paint enlarged portraits for the local photographers, seems to imply that where the authorities choose to relax the regulations they can easily do so.

A London firm of bank-note printers, who are sending a parcel of their productions for exhibition at Chicago, claim that one of their specialities is the impossibility of forging their notes by means of photography. They contend, in fact, that their blue and gray tints cannot be photographed. This may be so, but the French authorities thought the same some time ago, and were greatly astonished when they were undeceived. It would be interesting to know what tests the London firm have adopted.

La Nature of last week gives a description of a photographic map of the country traversed by the Canadian Pacific Railway, produced by means of a photographic apparatus constructed upon the basis of a theodolite, which M. Laussedat invented more than thirty years ago. M. Laussedat tried to induce the military authorities to take up his invention, but in vain, although he had for years experimented successfully in the neighbourhood of fortifications. *La Nature* does not mention the nationality of these "military authorities," but we presume that the English authorities are referred to. The Canadian Pacific Chart was commenced in 1888, and is deduced entirely from photographic views taken each year between the middle of June and the middle of October in all weathers. Taking full advantage of every fine day, the operators secured sufficient photographic material to employ them indoors during the other eight months of the year.

The English correspondent of *Le Moniteur de la Photographie*, in referring to the late Mr. William Bedford, calls him one of the *doyens* of modern photographic artists, and refers to the time of the second Empire, when "the landscapes of Bedford excited as much admiration in France as in England." This would make Mr. W. Bedford about twenty when he was producing these photographs. Surely Dr. Phipson has confused the son with the father. Mr. Francis Bedford is happily still with us. The error is the more singular, because Dr. Phipson correctly gives Mr. W. Bedford's age—namely, forty-eight.

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Social Evening.—On Saturday, February 11th, the employés and friends of Messrs. Percy Lund & Co. held their third annual "Social" at Bradford. Over a hundred persons sat down to tea, and a number of others joined them later in the evening for the entertainment which followed. The London branch of the business was represented by Messrs. H. Snowden Ward and W. C. Hay, and the firm's provincial travellers. Mr. F. Parkin, from the North ground, and Mr. Spencer Warren, from the South, were also present. Mr. Percy Lund presided over the entertainment, which was entirely sustained by the employés. The programme included songs and recitations; a mock trial, arranged by those taking part in it; several tableaux, and a vocal waltz, which was received with enthusiasm and vigorously encored. Between the stated items of the programme a few games were interpolated for the younger folk, and the proceedings finished with a couple of verses of "Auld Lang Syne."

LANTERN SCREENS.

BY CHAS. A. PARKER.

I.—The Preparation of Permanent Screens.

In the early days of the magic lantern it was customary for a great many of the so-called necromancers or wizards to perform some startling and apparently supernatural tricks by projecting the lantern image upon the smoke arising from a chafing dish filled with burning drugs, thus producing a weird and uncanny effect, which it is needless to say impressed the spectators with the belief that they were in direct communication with the denizens of another place which had best be nameless. In later times, when the possibilities of the lantern as a source of instruction and amusement came to be recognised by the scientific world, it became needful to find some more tangible support for the pictures, and, as a result, the lanternist of the present day has several different projection surfaces to select from.

In public institutions, where the lantern is in frequent request, it is generally found convenient for a portion of the end wall of the lecture-room to be properly whitened and set aside for the purpose; but for private use, or occasional public exhibition, it is usual for the operator to provide himself with a portable screen that can be carried about from place to place. A lantern screen of this description is almost invariably formed by joining together one or more widths of calico or linen sheeting in order to obtain a single sheet of the desired size, and occasionally the opacity of the material is increased, and the brilliance of the pictures consequently enhanced, by facing it with pure white paper or by the application of a coat of whitewash, either of these methods serving to produce a surface which is only equalled by a whitewashed wall.

Although a smooth, plastered wall is universally acknowledged to afford the best possible surface on which to project lantern pictures, there are, comparatively speaking, but few people who know how to whiten a wall which may have become discoloured; and as the ability to perform a task of this kind without calling in the aid of that noble specimen of industry, called the British workman, is "a consummation devoutly to be wished," the writer will endeavour to point out the method to be followed in performing the desired work.

Assuming that the wall has been previously whitened and become discoloured by age, it will be necessary to start by washing off every vestige of the old distemper by the aid of a pail of warm water and a whitewash brush. The water should be applied plentifully to a good-sized patch of the wall by means of a few well-directed strokes of the brush backwards and forwards, until the whitewash appears to be thoroughly soaked with the water, when it will be found a simple matter to remove it by a few applications of the frequently rinsed brush. It will be necessary to guard against splashing any adjacent objects with the dirty water, which, by the way, will need to be occasionally changed, and if the distemper does not come off very readily, its removal may be accelerated by the addition of a small quantity of liquid ammonia to the washing water. If considered more convenient, the old coating, when thoroughly wetted by the whitewash brush, may be wiped off by the use of a coarse cloth, which will naturally require to be frequently rinsed in the water; but in either case the workman should carefully avoid overlapping a previously wetted surface, as this is productive of streaks. Each time that the brush is rinsed it should be pressed against the rim of the pail, in order to avoid taking up too much water at a time.

As soon as the old coating has been entirely cleaned off, the workman will need to examine the wall very particularly in order to discover any defects or imperfections, which will require to be stopped by means of a thick paste composed of plaster of Paris and whiting mixed with water, and applied by the aid of a painter's stopping knife. This is best done while the work is still wet from the washing, or, if it has become dry, it will be necessary to moisten the cracks with water before applying the paste, any loose pieces of plaster being removed by the point of the knife beforehand. When every part of the wall has become quite dry, it will be well to give it a coat of size, which is applied by means of the whitewash brush, previously rinsed out in plenty of water. Some people omit the process of sizing, but in the present instance it is specially needed, as it tends to produce a smooth and non-absorbent surface.

In order to prepare the size, put a couple of handfuls of the best double size into a saucepan containing about a quart of water, and then put this over a slow fire and stir it thoroughly until quite melted, care being taken to avoid burning, after which it may be turned out into a clean pail ready for use. After the wall has been sized and become dry, it will be ready for the distemper, which is prepared in the following manner:—Break up about three or four large balls of whiting into a freshly-rinsed pail, and then pour on just sufficient water to cover them. This is best done overnight, so that the water may be poured off in the morning and the whiting beaten into a thick paste of a uniform consistency. As the distemper thus prepared would dry with a yellow tint, it becomes necessary to kill the yellowness of the whiting by the addition of a small proportion of blue. For this purpose, mix about a tablespoonful of dry ultramarine blue with some of the whiting on a clean plate, and then proceed to grind and crush or otherwise thoroughly incorporate the mass until a uniformly thin, smooth paste has been produced, then add a little more whiting, and afterwards transfer it to the bulk of the latter contained in the pail, stirring the whole well together. At this stage of the proceedings, the whiting will require the addition of some size, in order to bring it to the proper consistency. The size is prepared by dissolving about a couple of pounds of the best double size in its own bulk of water contained in a saucepan, which is placed over a moderate fire and constantly stirred until quite melted in the manner before directed. When quite dissolved, the hot size must be poured into the whiting, and the two thoroughly incorporated by continued stirring, after which the whole should be strained through a piece of coarse muslin or canvas and then placed aside to cool. It is very important for the blue to be well crushed before being added to the bulk of the whiting contained in the pail, otherwise some of the blue is liable to be distributed over the surface of the wall in the form of small balls of powder, and when any of these become broken, they produce unsightly streaks, which are exceedingly difficult to remove.

When the distemper has become quite cold it should set in the form of a thin jelly, which can be easily broken up by means of the whitewash brush, and will be ready for immediate use ; but, before being applied, it will be advisable to lightly rub the surface of the wall with a piece of fine glass paper in order to smooth the sizing and remove any bubbles, brush marks, or other imperfections. This done, the work will be ready to receive the distemper, which should be carefully and evenly distributed over the entire surface as rapidly as possible, care being taken to guard against splashes when the brush comes to the end of a stroke. The strokes need not of necessity be taken straight, but the brush can be worked about in any direction most convenient. If, after each stroke of the brush, another is taken just rapidly and lightly over the first, in such a manner as to merely allow the tips of the hairs to touch the surface, it will have the effect of producing a uniformly even surface. When the brush is found to drag it will be well to mix just a small quantity of water with the whitewash until it is found to work smoothly, but it should on no account be made thin and sloppy. If the surface presents a uniformly dark appearance of a bluish tint when wet, it will be found to dry perfectly white. If a new brush is employed for this purpose it will probably be found to shed the bristles plentifully and leave a considerable number about on various parts of the surface, consequently the reader should endeavour to employ a brush that has already seen some service and become slightly worn, as this will produce a much better surface than an absolutely new one. After use the brush should be thoroughly washed before being put away, and when it is wanted again it will require to be soaked in water previous to being used, otherwise the hairs will come out in abundance in consequence of its being too dry.

If the wall has already been papered at some time previous, it will require to be first stripped of all the loose portions, and then papered with paperhanger's white lining paper, after which it may be distempered in the manner above described. The paste employed for the purpose should be thin and smooth, in order that the paper, when laid, may present a uniformly smooth and even surface, free from lumps or wrinkles.

The paste employed for this purpose is the ordinary paperhanger's flour paste, which may be readily prepared in the following manner :—Mix a half-quartern of flour to a thin paste with a small quantity of warm water in a clean pail, and then proceed to stir the mass thoroughly together until a uniformly thin, smooth paste, entirely free from lumps, has been produced, after which it should be thickened by the addition of sufficient boiling water taken direct from the fire. The water must be added slowly and with constant stirring, in order that the paste may thicken properly, and as soon as it has attained a semi-transparent appearance it may be considered ready for use, that is to say, as soon as it has become cold. The above proportion of flour should be sufficient to produce about three parts of a pail of paste, which may be improved by the addition of an ounce of alum.

It sometimes happens that a permanent screen is desired to be erected in a position in which it would be inconvenient, if not impossible, to whiten the adjacent wall. In such an instance, an excellent substitute may be provided by means of a strong wooden frame, of a suitable size, which is covered with stout, unbleached calico, strained and nailed across the frame by means of small tacks, until it presents a uniformly even surface, entirely free from creases or puckers. A solution of hot size is then brushed well into the covering, and then allowed to become dry, after which the whole is provided with one or two coats of whitewash, prepared and laid on in the usual manner, until a uniformly smooth and even surface has been produced. The screen, when ready, may either be allowed to remain on the frame, which is arranged to rest against the wall, or, if preferred, it can be mounted on a lath and roller in the usual manner.

(*To be continued.*)

AERIAL PERSPECTIVE.

BY XANTHUS SMITH.

THE matter of focussing the image upon the ground-glass or focussing screen of the camera, with regard to a determination of the amount of definition in the photograph, is so important a one in its relation to artistic effect, that we feel we may, without apology, be permitted to supplement the excellent article by Prof. W. K. Burton, "The Stop to Use," published in the November number of this journal, by a few remarks which may make more intelligible what Prof. Burton evidently feels to be the case, but is not clear enough upon to assert as definitely as he perhaps should.

Objects as we see them in reality, in addition to extending on a plane parallel to our eyes, also extend towards us and from us, and as one object after another is added to those constituting the scene before us, there is an actual recession which, as in the case of landscape scenes, if we would travel from our point of sight to the extreme boundary of our scene, would often take us very many miles away from our starting point. This continual receding of parts, which is often spoken of as the natural perspective of a view, is so common to us that it does not form a matter of thought or arrest the attention in any way until we come to see a representation of such scene or view upon a flat surface, as in a drawing, or painting, or photograph. Then it is that we feel the shortcoming of art, which cannot in any way advance or recede beyond the surface plane of the canvas or paper, except as in the case of scenery in theatres ; and yet this very shortcoming contributes one of the greatest beauties and features of attractiveness in a well-executed work of art, because by the art of the painter is overcome the appearance of want of relief, and the very deceptiveness of that which he presents to our vision adds to its charm.

It is the knowledge of this fact, and the effort of the higher-class photographer to vie with the painter, which has given rise to the discussion which we see continually in progress of the effect of certain alterations of focus in portraying scenes with the camera to bring about, if possible, this perspective effect.

There are two things upon which the painter mainly relies to bring about the appearance of recession. The one, perspective, which is really the diminishing in size of objects, under certain absolute laws, as they recede from the eye, which is called linear perspective. The other, the intervention of atmosphere between the receding passages, which is known as aerial perspective.

The former is unvarying, the rules being the same under all conditions, whilst the latter is simply accidental, varying with the conditions of the weather and other uncontrollable circumstances. In addition to these two means within the power of the painter to produce his perspective deception are others, of minor importance, though often made use of, such as the choice of bold features in his foreground, brilliant lights, deep shadow touches, and coarser or more vigorous handling with his brush or pencil. Some of these may be made available by the photographer, others not.

The chief reliance of the landscape photographer for the attainment of the effect of retirement in the receding passages of his picture must be the intervention of atmosphere, and here again is a nice point, for there must be just enough of such haze to bring about the desired effect. He cannot, as the painter does, at his will, change and vary, perhaps bringing in more here and clearing away there, thus sharpening and heightening his effects; he must choose a time when there is such prevalence of haziness as precisely suits his aim. Not too much, because then it will be impossible to attain a sufficient amount of detail in his foreground before his distance will have been irrevocably over-exposed, and not too little, or he will find his distant features failing to retire, and his perspective effect will be lost.

There is a continual complication in this matter of effect of recession, between studio or group photography, and that of open landscape views. In the former much more may often be conveyed by alteration of focus than in the latter, because the effect of blurring is much greater in looking at an object a few feet from the eyes, of other objects in the rear of it, than is the case in taking a comprehensive out-door view. Therefore the act of vision is better accommodated by the nature of circumstances.

In the case of groups, and what are known as picturesque foreground bits, wherein the whole subject pertains comparatively to the foreground, atmosphere can have little or no influence in the matter, and a blurring of the background may do much in the way of accentuation of the principal feature of the work. Let us especially note here, however, that such blurring by unaccentuated focus can have little benefit when the background features are very marked in light and dark, or vie in size and form with the principal feature, or are ill-shapen. When a really fine picture is desired such must be avoided.

Some painters, more especially modern, have done much in giving relief to their figures by finishing the latter highly and painting whatever may have formed the background, even though it were near objects, in a blurred manner. We recall some work by De Koninck as especially happy in the effect of relief produced in this way, but the background features were so chosen as not to vie too much with the subject-figure.

Backgrounds so treated, that is to say, blurred by being put out of focus, must be of such a character as to be considered background solely. Whenever any of the background objects assume sufficient importance to be in any way a prominent part of the picture, it becomes necessary to accentuate the focus sufficiently upon them to make them distinct.

To return to landscape work. In order to attain the best perspective effect, we must necessarily choose a time for taking our views when there is just that nice amount of haziness which will give a due softening of each retiring passage of the work. Only the most careful observation and continual practice will train the photographer in this matter, not only, as we said before, because the precise amount of obscurity must be determined, but also because its character will make much difference, there being a certain bluish white smoky atmosphere prevailing sometimes which will much more potently affect the sensitive film than will be the case under other conditions of murkiness.

There can be no attainment of this desired artistic effect so perfect as that of taking a view under the most favourable atmospheric conditions. No simple blurring of distance by imperfect focus will attain the desired aim when atmosphere is entirely absent.

My remarks must be taken in the true artistic sense. We are well aware that this quality of atmospheric perspective is understood by but few in this country, and even in an admirable little work recently published in Paris, upon orthochromatic photography, the author gives two examples of an extended view with distant mountains and middle-distance town, under what an artist would consider a favourable atmospheric condition, to show how much superior the view is taken upon the orthochromatic plate because the appearance of haziness is entirely overcome by it, and the town and distant mountains show up in all the distinctness of detail which would pertain to a clear atmosphere.

The best English photographers are working in the true artistic way, and those who are relying upon good composition and light and shadow, with the proper amount of atmosphere, are having the best success; some of those who have relied solely upon alterations of focus to attain their aim, notably Mr. Emerson, having given up in despair.—*American Journal of Photography.*

* * *

Mr. Frank Howard, of Wallingford, Berks, has accepted the post of Hon. Critic to the Lantern Slide Exchange Club (Hon. Sec., A. J. Richardson, Summerville Dore, Sheffield) in place of Mr. A. R. Dresser, of Bexley Heath, Kent.

A CAMERA TRIP IN GREAT RRITAIN.

UNDER the above title Miss Catherine Weed Barnes publishes in the *American Amateur Photographer*, of which she is one of the editors, an account of her recent visit to this country. From this interesting article we extract the following, feeling sure that our readers will be glad to know something of the impressions which our fair visitor carried home with her concerning "the old country.' We may mention here that the article is illustrated by several good photographs by the gifted authoress :—

"Starting from New York about the middle of last May, we landed at Southampton in the loveliest of all seasons to visit England. As our tender bore us from the steamer, we passed the shores of the Isle of Wight, fresh and green and looking a paradise to us, for we had endured a rough voyage. We were met by a fellow-worker who, being a total stranger, could only look for 'a lady with a camera.' Thanks to his kindness, we were soon through with that most inhospitable welcomer to solid ground, the Custom House, and established in a small, comfortable hotel, where we were made to feel at home. We had arranged not to need much baggage until reaching London; so were able to ramble about the town and rest a little before being driven out to Hursley, famous as the former home of Keble, author of the 'Christian Year' and vicar of that place, where he is buried. The hawthorns, laburnums, and rhododendrons were in bloom, and, as is generally the case in England, the roads were smooth and delightful to drive over. Southampton is much more than a point of arrival and departure; it has great historical interest, and of the various places of importance in the neighbourhood, the most noteworthy to us were Netley Abbey and the New Forest. The former is about three miles from the town, is kept in very good order, and permission to visit it is readily obtained from the owner. A more lovely spot is hard to find when one visits it, as we did, in May. The ruins are draped with ivy and vines, and enough of the structure is left to show that, while yielding to Furness and Fountains Abbeys in size and impressiveness, it has a beauty all its own. My camera found plenty to do; the light was perfect, and no time was wasted. Netley is reached by crossing the River Itchen and then driving or walking until you come suddenly on the Abbey, almost buried in luxuriant foliage.

"The New Forest, which, however, dates back to the Conquest, is about ten miles from Southampton, and comprises over sixty thousand acres of Crown lands, besides what is private property. There is a numerous population within its borders—woodmen, charcoal burners, &c.—and the ruins of the hut where it is claimed William Rufus was carried after his death are still standing. Some of the huts are made of turf, hardly fit for the home of a human being. There are fine roads in many directions, and the little town of Lyndhurst is the capital, several villages being included in the forest limits. At Stoney Cross a stone several feet high marks the place where the Red King is supposed to have met his death from Tyrrell's arrow. It is visited by crowds of tourists and "trippers," as the English call those who make short journeys. Indeed, the aforesaid "trippers" are often a great nuisance to the painter, but especially the camerist who desires to do good work. In proportion generally to their personal unattractiveness is their desire "to be took," and they are given to posing just when and where their absence is desirable. I can speak feelingly on the subject from sad experience. There are many grand old trees in the Forest, where they have reigned kings of the woodland for centuries, and the lover of nature could spend many a happy day under their spreading branches. Our visit there was one long to be remembered.

"Another day we went by rail to Winchester, a city of the greatest interest, dating back, as its history does, to a period beyond dates. The cathedral, while not as beautiful as Salisbury and not having the advantage of such a situation as Durham, is stately and impressive when seen from either side, and its portal, with its central towers, shows to great effect through the avenue of trees leading to it. Solidity rather than grace marks Winchester Cathedral, and its historic associations confer importance on it. Before the altar is the tomb of William Rufus, a small, unobtrusive monument, slightly raised above the pavement. Next to the cathedral in importance is St. Mary's College, founded by William of Wykeham, the greatest architectural genius of his age, in the fourteenth century.

"A lovely drive takes one to the Hospital of St. Cross, built in the time of King Stephen, and which supports thirteen poor brethren. A curious remnant of its former hospitality survives in the custom of presenting each visitor with a horn of ale and a slice of bread. The church is a valuable example of architectural antiquity, and has a fine Norman tower. I photographed these various points, but regretted not having time to take the deanery and other buildings surrounding the cathedral, which are fascinatingly quaint. There is a beautiful cross in the market-place, but the good people of Winchester were altogether too much interested in my attempt to photograph it for me to succeed."

"Leaving Southampton, we journeyed along the south coast to Hastings, or rather its modern neighbour, St. Leonards-on-Sea. Here we were within a stone's throw of the Channel, and over the almost inaccessible heights frown the venerable ruins of Hastings Castle. The hill is simply the steepest ascent I ever saw in a town, and but little of the structure is standing, though the view from the walls is superb. Our hotel was also very much up and down as regarded stairs, and the halls were hung with a number of brass warming-pans, which forcibly suggested Mr. Pickwick's experience with Mrs. Bardell. The morning after our arrival we drove in an open carriage, camera accompanying, to Hurstmonceaux Castle, until about 1780 one of the most perfect castellated mansions in England; but it was almost dismantled by its thrifty owner to obtain material for improving his family residence. The building, or rather what is left of it, is looked after by a keeper, who made no objections to my working where I chose. The situation is very picturesque, and a morning could be profitably and delightfully spent in what was once a stately mansion. I was told afterward that the place is now owned by a relative of Mrs. Dallmeyer, wife of the celebrated lens-maker. For most of the way the road leads near the coast, which greatly adds to its beauty, and our driver being very thoughtful for the comfort of the two strange ladies, helped increase our enjoyment. I strongly advise all camerists in Great Britain to adopt, whenever possible, the plan of driving or walking in place of railroad travel. You see the country to much better advantage, are more in the open air, and can stop to photograph any desired point when so "disposed," as Sairy Gamp would say. Before returning to Hastings we drove to Pevensey Castle, six miles farther, but the ruins are only a shell and fragmentary at that. A portion of what I judged was once the moat is still indicated by a pool of water. It was near here that William of Normandy landed in 1066. No one knows when the castle was built; but there were a quantity of Roman bricks used in its construction. The masonry is somewhat peculiar, and I obtained a view of the interior of one tower, although it was needful to use an extremely short-focus lens, and then stand behind the camera to break the force of the wind, the danger of a possible cold not being taken into consideration. It should be mentioned that, on this excursion, as on most of those during my trip, I carried an 8 by 10 camera with its belongings, several lenses, and a dozen double plate-holders. The greater part of the time I was my own porter, and when one has only a limited time to use, a heavy outfit to carry, and—more than all—to choose good points of view, decide on the best lens, time of exposure, and proper stop with reference to the particular plate used, it requires an extensive quantity of enthusiasm to keep one up to work. I carried a large number of American plates with me, but was obliged several times to purchase different English ones, and then the length of exposure was quite a problem. I developed two or three plates only while in England, but the time spent in careful focussing and judging the strength of the light was not wasted, as out of nearly a hundred and fifty plates so far developed, barely a dozen have been failures.

"We left Hastings by way of Battle Abbey, the site of the battle of Hastings; but the property is owned by the Duke of Cleveland, and there are many restrictions as to admission, so that I was only able to photograph the main entrance. In the grounds is the spot where King Harold fell, and it would seem as if such a place should be owned by the nation, not by an individual, and that all English-speaking races should have access to the battle-field which so largely influenced the world's history and especially their own. If William had fallen at Hastings instead of Harold, would it have been better or worse for England? Every English and American child should be privileged to tread this historic ground and learn the lesson it ought to teach. To me it has always seemed as if the Norman obtained his success by fraud and treachery, and that the Saxon died a martyr to the noblest patriotism.

"From Battle we went north to London for a short season, and then turned back to Tunbridge Wells, where I spent a day or two with that well-known worker, Mr. H. P. Robinson, with whose pictures most camerists are familiar; to Hever Castle, the home of Anne Boleyn; and Penshurst, that of Sir Philip Sydney. Some account of these must be reserved for future articles."

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

2,566. Joseph Thacher Clarke, 3, College Road, Harrow, "Improvements in or relating to Apparatus for the Exposure, Separation, and Storing of a Pack or Series of Photographic Films."—*6th February*, 1893.

2,707. Albert Stair Harry, 77, Chancery Lane, London, "Improvements in and relating to Photographic Retouching Devices."—*7th February*, 1893.

2,747. L. Marion, H. Guibout, George Bishop, Frank Bishop, and John Paterson Kirk, trading as Marion & Co., 22, Soho Square, London, "A Chambered Roller, with the chambering carried parallel right through, and as a through Draft Roller applied to Photographic Burnishing Machines."—*8th February*, 1893.

2,930. Thomas Foster Wood, 9, Westbury Park, Bristol, "Improved Photographic Rocking Apparatus."—*10th February*, 1893.

Specification Published.

18,230. *October 12th.* 1892.—"Camera Stand."—H. L. Wright, The Firs, Loughton.

The object is to provide a simple means of fixing a photographic camera of any form to a stand of any form, and to do away with the ordinary holding-down screw, and consists in a frame with a boss in the centre, the level of the top face of the boss being below the level of the face of the frame. A hole is bored through said boss, and an oblong block—having a dovetailed-shaped groove in the top from end to end, having a stem on its underside—is fitted into said hole—that is, the stem is fitted into the hole, and the top of the block is slightly below the top face of the frame. A small slide is fitted into the groove in the block, and is attached to the base of the camera, so that on sliding it into the groove it fastens the camera to the block. At the bottom of said stem and on the underside of the frame is fitted an eccentric ending in a handle which turns on a pin driven through the eccentric and stem, so that when the handle is turned into a horizontal position the block is free to turn round; then, by sliding the before-mentioned slide into the groove in the block and turning the handle down, a part of the eccentric presses against the underside of the frame and draws the block with camera attached firmly down on to the top of the frame, thereby fixing the camera to the frame.

Printed copies of the full specifications of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

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The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, FEBRUARY 24, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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PHOTOGRAPHY AND JOURNALISM.

A FEW weeks ago, that accomplished artist, Mr. Linley Sambourne, in an article about his method of working, told a contemporary how largely he made use of the hand camera, and of what service it was to him in securing pictorial memoranda of figures and fashions. Other "black and white" artists, as well as journalists, have, at different times, recorded their indebtedness to the camera as an aid to their work, and there is every indication that their lead is being followed by a considerable number of newspaper men. We may assume that with the constant improvement of apparatus, and with the wonderfully rapid plates now procurable, the journalist of the near future will rely upon photography as his sheet-anchor, and will possibly be able to obtain pictures under conditions which at present seem unattainable.

Two or three years ago the representative of a Parisian paper, *Le Journal Illustré*, made a new departure by enlisting in his service a camera, not for the mere purpose of making photographic views of the ordinary type, but as a means of recording the facial expression and gestures of a noted man whom he submitted to the journalistic ordeal known as "interviewing." The victim was the famous centenarian, M. Chevreul, and the resulting portraits were published as illustrations to the interview which subsequently appeared in the journal referred to. In this case the pictures were decidedly interesting as a photographic experiment, and it was evident that the subject had accentuated his remarks with those expressive movements of the features, the hands, and the shoulders which are common to our lively Gallic neighbours. But we are not told under what conditions these pictures were taken. Certainly at that period, if not now, such work would be impossible in a well-lighted, ordinary room, although we cannot say that it will be so for long. Advances in the matter of rapidity are so constant that we know not what surprises the immediate future may have in store for us. Possibly the interviewer in this case persuaded his subject to step into the open air while the operative part of the ceremony took place, or, perhaps, the interview was interrupted by occasional flashes of magnesium light. But, whatever may have been the exact method by which these photographic memoranda were secured, there they stand as examples of what can be achieved, and of what will be done to far greater perfection later on.

Of late years journalism has been recognised as a distinct profession, and it is a common thing to see advertisements, emanating from those who have risen in it, offering to initiate those commencing life into its methods and mysteries. It would be well, we feel certain, if all aspirants to journalistic success were to make themselves acquainted with photography. And this would be useful to them if only because they would learn something about its limitations. One natural result of the introduction of the hand camera has been that the general public believe that with one of these instruments it is only necessary to touch a "trigger" and a picture must result. It matters not whether the sun or the moon be shining, whether it be clear or foggy, sunshiny or rainy, the picture is bound to present itself. This belief is partly due to the action of certain unscrupulous persons, who have put forward impossible advantages for the apparatus in which they are interested. One of these, which came under our notice lately, was retailed for a few shillings, and was declared by its exploiter to be capable of taking a portrait in an ordinary room, or instantaneous pictures in law-courts, churches, &c.! A little study of the conditions under which what are called "instantaneous" pictures can be secured, will prevent the attempt to do that which is impossible.

The journalist who takes up camera work will also quickly learn that a photograph obtained under hurried conditions is generally full of faults which an artist would at once condemn, and that his work will often serve only as the basis of a picture for publication. His camera will be useful in laying the groundwork of a picture, but it must go through the hands of a trained artist before it is translated into block form. Indeed, there is much to learn in this work of journalism coupled with photography; but that in the near future the two arts will often be found hand in hand, we have no doubt whatever. The probability is that the successful journalist of the future will be one who knows how to use the camera, as well as both the pen and the pencil, and such a man will never be short of work.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Guaiacol as a Developer—Physical Development of Gelatino-Bromide Plates—Amidol.

Guaiacol as a Developer.

ACCORDING to the theories of Dr. Andresen and Messrs. Lumière, which have been published in the columns of the Photographic News, guaiacol should show no powers of developing gelatino-bromide plates. The experiences of Colonel J. Waterhouse, who stated some time ago that guaiacol is a developer for dry plates, seemed, therefore, opposed to the principles laid down by the above-mentioned experimenters. It has, however, been proved quite recently that the developing powers shown by certain samples of guaiacol are due to impurities. The guaiacol used by Col. Waterhouse in his first trials was obtained from Dr. Th. Schuchardt, of Görlitz. Herr R. Ed. Liesegang, repeating the experiments of Col. Waterhouse, but with a somewhat purer sample of guaiacol, found the statements of the latter to be correct, though only very feeble images could be developed in the strongly alkaline solution of guaiacol. For this reason, he did not recommend it for gelatino-bromide, as it has been mentioned erroneously by Col. Waterhouse in his communication to the Photographic Society of Great Britain. Herr Liesegang has, however, given a formula for developing gelatino-chloride printing-out paper (aristotype paper) with guaiacol. He also pointed out that guaiacol cannot be recommended as a practical developer on account of its intense odour, and because its use involves an alkaline reaction of the developer. About this I have already informed the readers of this journal on a previous occasion. From a theoretical point of view these experiments are of interest. The question whether absolutely pure guaiacol be a developing agent or not leads to the more general one: Will it be at all possible to apply the principles laid down by Dr. Andresen and Messrs. Lumière to the physically-working developers—*i.e.*, to those working with excessive silver nitrate? Herr Liesegang, who has not yet had an opportunity of working with an absolutely pure sample of guaiacol, tries in the meantime to state the relation with other substances. Resorcin (meta-compound) shows, according to his experience, no developing power, not even if it acts for several days in the form of a strongly alkaline solution, whereas the isomeric paracompound, the hydroquinone, is an excellent physical developer. Also, experiments with the isomeric amidophenols seem to affirm the above-raised question.

Physical Development of Gelatino-Bromide Plates.

The last number of the *Photogr. Archiv* contains an extensive research on physical development by Herr R. Ed. Liesegang, which, like the contributions of this indefatigable experimenter generally, deserves fullest attention. The following is only a very short abstract of the article:—Gelatino-chloride paper with silver nitrate in excess may, after the silver nitrate has been completely washed out, be developed with gallic acid, hydroquinone, &c., if to the latter substances, after they have been acidified, silver nitrate has been added. The silver salt contained in the sensitive film may, therefore, be substituted by the soluble silver salt, which the developing liquid contains. Professor Eder stated in the year 1886 that a gelatino-bromide plate which has been placed in silver nitrate solution previous to exposure may be developed with acid developing solutions. The question arises: Will development take place also if this salt is added to the developing solution only after the film has been exposed? The experiments made by Herr Liesegang have given evidence of the correctness of this hypothesis. The best results were obtained if the gelatino-bromide plate, after a rather long exposure, was placed in a mixture of—

Hydroquinone (2 per cent. alcoholic sol.)	5 c.c.
Formic acid	5 ,,
Water	50 ,,
Silver nitrate (5 per cent. sol.)	5 ,,

After the lapse of eighty minutes, a yellowish-brown image was obtained, the solution remaining entirely clear. Meanwhile these experiments are rather of theoretical than of practical value, the negatives obtained by the above given developer being still too thin.

Amidol.

In the *Phot. Mittheilungen*, Professor H. W. Vogel publishes the following experiment made by him, in order to compare the developing power of amidol with that of pyrogallic acid. The following solution was made:—

Water	1,000 c.c.
Sodium sulphite	50 grammes
Amidol	1 gramme

Two plates were exposed in dull light on a landscape, each for ten seconds, and one was developed with 60 cubic centimetres of the above solution. The image came out very rapidly, and was fogged after a short time, though no alkali had been added. Subsequently 10 drops of potassium bromide solution, 1 : 10, were added to the same already used developer. The image appeared now decidedly slower, but it still gave the impression that it had been over-exposed, the unexposed parts of the plate at the edges remaining clear. Now two other plates were exposed on a dark corridor, the one for thirty seconds, the other one for forty seconds. The latter was developed with pyro and soda, the former one only with the above given amidol developer (without soda), both solutions being mixed with an equal quantity of potassium bromide (one drop of a solution 1 : 10 to each 10 c.c. of the developer). In the case of the amidol developer the image appeared very rapidly, in the case of the pyro developer very slowly. Gradually the pyrogallic acid matched the amidol, but it rendered the lights too dark, without giving a larger amount of details in the shadows. As the outcome of several experiments, the following conclusions were arrived at :—

1. The amidol developer without alkali required only three-fourths of the exposure which the pyro developer required if alkali was added to it.

2. The pyro developer gives greater density and a darker colour ; but, on the other hand, it is also liable to give much harshness.

3. The amidol developer works considerably quicker, and shows more moderate contrasts than the pyro developer, so that it will be preferred by amateur photographers, who are impatient.

Finally, the author points out that he prefers a slow-acting developer, which allows one to watch the result, and that for this reason he develops with pyrogallic acid in cases where good results are required. He avoids the employment of hydroquinone as a developer in winter on account of its still slower action ; but, if he be in a hurry, he prefers amidol.

PROPOSED NEW CENTRAL PHOTOGRAPHIC CLUB AND INSTITUTE.

A PROPOSAL has recently been discussed and adopted by a provisional committee, having for object the establishment of a photographic club and institute, occupying a central position in London, easily accessible from the principal railway termini and by the chief omnibus routes, &c., and therefore convenient both for town and country members. The Provisional Committee discussed the following leading points of the scheme :—

1. That the Club be called the Central Photographic Club.
2. That the Club premises be open during recognised club hours, refreshments being obtainable, and the premises to comprise meeting room, smoking room, library, dark room, and other photographic and ordinary club conveniences.
3. That membership be at the disposal of All Interested in Photography, both in town and country.
4. That the subscription for town members be £1 1s., and for country members 10s. 6d. per annum.
5. That it is desirable to make the social element a strong feature of the proposed Club, while at the same time technical photographic meetings, lantern entertainments, exhibitions of pictures, apparatus, &c., should also be held.

The idea of the proposed Club as outlined above is strongly supported by a great many gentlemen who have expressed their intention of joining. For this and other reasons a very large membership may be anticipated. A meeting (to which all interested in the proposed Club are hereby invited) will be held on Monday, March 6th, at eight o'clock, at the Memorial Hall, Farringdon Street, E.C., to appoint a permanent working committee for organising the Club, to discuss details and suggestions, &c., and generally to arrange preliminaries.

Provisional Committee : Birt Acres, A. Cowan, T. E. Freshwater, F.R.M.S., F. W. Hindley, J. Howson, Redmond Barrett, R. Beckett, F. W. Edwards, T. Fall, E. Howard Farmer, R. P. Drage, Wm. Fenton Jones, A. Haddon, A. Horsley Hinton, John A. Hodges, Charles H. Oakden, J. Traill Taylor, T. Bolas, T. C. Hepworth, H. Sturmey, E. J. Wall, Thomas Bedding.

PHOTOGRAVURE DEMONSTRATION.

THE first of two lectures and demonstrations on the process of photographic etching on copper, known as photogravure, was given, on Friday last, at the Bloomsbury Hall.

Mr. P. Everitt, in introducing the lecturer, Mr. Herbert Denison, of Leeds, explained that the Affiliation Committee of the Photographic Society of Great Britain had felt the importance of photo-technical education, and had arranged for this subject, which was intended to be the first of a series, to be treated by a gentleman who was recognised as an adept in the process. Mr. J. Traill Taylor was then requested to take the chair.

Mr. H. Denison referred to the difficulty which was found in obtaining instruction, in a process of this character, from those who made it their business, and, therefore, although only practising it as an amateur, he had acceded to the request of the Societies in affiliation with the Photographic Society of Great Britain, which he was pleased to see taking its proper place in the technical education of photographers, to show them the manner in which he carried out the work of photo-engraving in intaglio for copper-plate printing.

It was explained that the aim is to get a plate which shall have an intaglio image corresponding in its varying depths to the depth of shadow in the original. These depths in the plate are first filled in with a thick ink ; all excess is wiped off, and a piece of damp paper laid on. The whole is then passed through a press, furnished with a blanket, which causes the paper to pick up the ink, and so makes a print. It is, however, not sufficicient to have an intaglio which shall merely correspond in depth with the shadows. Unless there is some contrivance for producing a special kind of surface, the ink would be wiped away from the smooth surface of the depths, except just at the edges of the shadows, where there is an angle formed by an adjacent light. The plate is, therefore, at one stage of the process, covered with a set of protective points, formed by covering it with dust of bitumen, and then subjecting it to a heat sufficient to melt the specks of bitumen.

The first step in the process is to make a transparency, and for this a special transparency carbon tissue is used. It is sensitised by immersion, until the tendency to curl inwards is quite overcome, in a solution of bichromate of potash, six drachms to the pint. The tissue is then squeegeed on to a ferrotype plate, and left to dry. A safe edge of opaque paper is placed on the negative, and the transparency is printed with the help of an actinometer. If Sawyer's actinometer is used, an average printing will be to let it run to the highest tint, and about three or four tints more. The development of a transparency was shown, and it was stated that, after washing, it would be treated for a few minutes with a 5 per cent. alum solution, and then, if necessary, intensified with a solution of permanganate of potash. After drying, a print is made in a similar manner from the transparency, but for this purpose autotype brown tissue is used. This second print, called the resist, is developed upon a copper plate. It does not require such deep printing as the transparency itself, and a trial resist may be developed upon a sheet of opal glass. There should be clear whites only in the highest lights. The further treatment of the copper plate, and the printing therefrom, was deferred until the final lecture and demonstration this (Friday) evening.

A large audience, including many representative members of the Photographic Society of Great Britain and of the Affiliated Societies, followed the various descriptions and operations, and the lecturer was heartily applauded at the close of the proceedings.

CORRESPONDENCE.

MR. DEBENHAM.

Sir,—I should be sorry to hurt Mr. Debenham's feelings, except, of course, in the usual parliamentary way to which we are both accustomed; and as I hear that he thinks my letter of last week overstepped the usual boundary, I withdraw it with pleasure.

H. P. Robinson.

PHOTOGRAPHIC CONVENTION.

Sir,—The Devon and Cornwall Camera Club have prepared a set of 118 slides illustrative of the neighbourhood of Plymouth. This set, which has been entitled "Places to be visited by the 1893 Convention," is now in circulation, and I should be pleased to have applications from the secretaries of any societies who desire to show them at their meetings.

Immediate application would be desirable, to enable me to arrange the route to be followed by the slides.

I may say that March 7th is the first date on which the slides are now available; any London society, making application, might probably have them on that date.

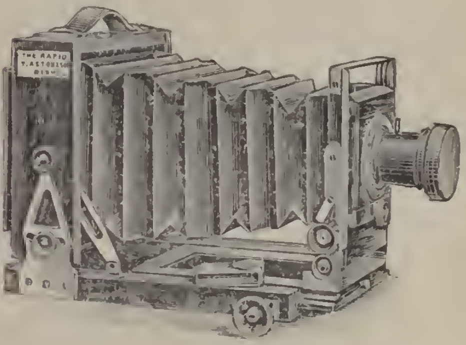
I venture to ask your insertion of this note, as I feel sure that you are interested in anything that may help forward the next meeting of the Convention.

R. Hansford Worth, Hon. Sec.

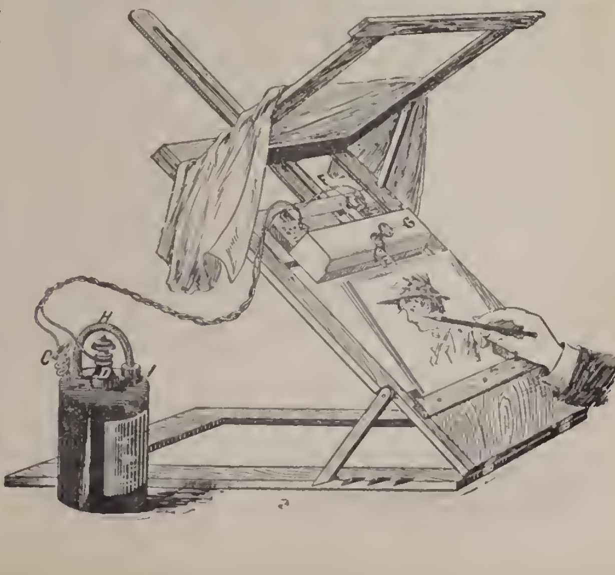
APPARATUS.

Messrs. Percy Lund & Co. have introduced a neat little "professional retouching knife," which, we think, will be welcomed by amateurs and professionals alike. In outward appearance, as will be seen from the annexed cut, the knife looks like an ordinary retouching pencil, but the graphite is replaced by a stiletto, which is pointed at one end like a needle, and has at the other a flat, oblique blade. This implement will not only be useful for retouching negatives, but can be employed for removing blemishes from photographic surfaces of all kinds.

"The Rapid" Camera is a neat and convenient little instrument, which is placed upon the market by Messrs. T. Aston & Son, of Spencer Street, Birmingham. As will be seen from the illustration, the rising front of the instrument has a rack adjustment which prevents any of that tiresome slipping which is common to many cameras when a heavy lens is in use. The camera closes up into a very small space, and presents many other advantages.



In Mr. Rudowsky's retouching desk the negative is kept in constant vibration by means of an electro-magnetic attachment, so that when the pencil is moved over its surface a minute stippling is brought about. The amplitude of the vibrations can easily be regulated, so that the stippling can be made coarse or fine, as may be required.



PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

The annual general meeting was held on Tuesday, 14th inst., Captain W. de W. Abney in the chair. Six new members were nominated, and the Hon. Sec. announced that ten Societies had that evening been admitted to affiliation. It was announced that of the photographs selected from the last exhibition for the permanent collection, the following had been received (in most cases the donors presented the pictures framed):—The Autotype Co., "Young England"; Mr. Birt Acres, "The Story of a Cloud"; Mr. W. Bedford, "Salhouse Dyke, Norfolk," and "Norwich Anglers at Horning"; M. F. Boissonnas, "Mont Blanc" (two photographs); Mr. Karl Greger, "Marsh Idyll" and "Sunset on the Lower Thames"; Mr. F. Hollyer, portraits of J. M. Barrie, Esq., and G. F. Watts, R.A.; Herr F. Muller, "A Portrait"; Mr. J. H. Roller, "A Portrait"; Mr. W. M. Warneuke, "A Portrait"; Mr. Main, "Frost" and "Sunshine" (two photographs); others promised being expected in a month or two.

The report of the Council and Treasurer's accounts were then read and adopted. The result of the ballot for officers and council was announced as follows:—President, Captain W. de W. Abney, C.B., R.E.; Vice-Presidents, Messrs. Glaisher, Spiller, Pringle, and Sir H. T. Wood; Council, Messrs. Ackland, Addenbrooke, Bolas, Cembrano, Clifton, Cowan, Dallmeyer, Sebastian, Davis, Debenham, Emerson, W. England, Freshwater, Gale, Hollyer, Lindsay Johnson, Chapman Jones, Mackie, Swan, Traill Taylor, and Warnerke.

A vote of thanks having been passed to Captain Abney, in reply, he referred to the future of the Society with confidence, and remarked that he should have stood for the presidentship of the Society had it only been to show how unwarranted were the insinuations made in certain quarters.

Votes of thanks were passed to the Treasurer, the auditors, and scrutineers, and to the Secretary and Assistant-Secretary.

The meeting then passed to the consideration of the new rules, about one-half of which were passed with slight verbal alterations, and the consideration of the remainder deferred until the 28th inst., at 9 p.m.

From the report of the Council, we make the following extracts:—

"The Exhibition at the Gallery in Pall Mall was conducted in a rather different manner from those held before, in that the exhibits were classified by the judges before the hanging committee entered upon their duties, and the process of selection was much more rigorous. In round numbers, only about two-thirds of the photographs sent in were accepted for hanging. But for this, the numbers would have shown a more marked increase when compared with the few preceding years.

"The number of exhibitors whose works were accepted was 202; that is more than we have had since the year 1887. The gradual decrease in the total of members exhibiting is compensated for by the non-members. There were twenty-eight foreign exhibitors—namely, sixteen sending from America, four from Germany and Austria, two from Switzerland, and one each from Australia, the Cape of Good Hope, India, France, China, and Japan.

"There were 166 lantern slides and forty-five apparatus exhibits.

"The Exhibition was open three evenings in each week, and through the courtesy of affiliated and other societies, and of friends, as well as of some of our own members, there was no lack of slides for the lantern shows. An extra evening was as usual devoted to the benefit of the Photographers' Benevolent Association.

"The admissions to the Exhibition show an increase of £20 1s. 3d. over last year, but there is a slight decrease on wall space and catalogues. The expenditure shows a decrease of £39 11s. 5d., and allowing for some advertisements outstanding the loss on the Exhibition will be about £45, as compared with £90 last. The Council have arranged with the Council of the Royal Water Colour Society for the next Exhibition.

"With regard to general finances, the entrance fees and subscriptions are less this year than last, as only two new members have paid the life subscription as against six last year. The sum of £22 19s. 10d. has been expended on the Library, and £3 2s. on purchase of photographs. £141 11s. 6d. has been received from the guarantee fund on account of 1891, and as this scarcely balances the account for 1892, it will be necessary to again call upon the fund for the same amount.

"Several Committees have been at work during the year, and as the result of their recommendations the Council have effected economies in the management of the Society, and a revised series of 'Laws' have been prepared, which are about to be submitted to the members. Nearly 3,000 circulars have been issued to members of various scientific societies and others, setting forth the aim and work of our Society, and inviting them to join us. The immediate pecuniary result of this has not been large, but it has been considerably more than sufficient to defray the cost of the undertaking. The introduction of mineralised methylated spirit has been duly considered.

"A specification of the Society's lens standards, as added to and completed during the previous year, has been published, and copies of it can be had by anyone who applies for them.

"The Council have begun to gather together a permanent collection of representative photographs, &c., by endeavouring to secure some of the exhibits that have been medalled or possess especial interest. In this they have met with a most hearty and generous response from those upon whom we must depend for success in the matter.

"The Library has been largely increased during the year Sixty-six volumes have been presented to the Society, about one hundred and eight have been added by purchase under advantageous circumstances; the serials for the year add fifty-two volumes, and besides these a considerable number of unbound pamphlets, &c., have been received. The number of serial publications, arranged for by exchange with our own *Journal*, has been increased from twenty-four to fifty-three, and it is hoped that in the near future this number will be still further augmented by important additions.

"The Museum has been enriched by a copy of Fox Talbot's "Sun Pictures in Scotland," a set of Daguerreotype apparatus, some calotype negatives, and sundry smaller but valuable items.

"The Affiliation scheme which was brought forward in 1891 has been developed, and during the year fourteen societies have been received into affiliation, so that the present total is thirty. Numerous meetings of delegates have been held, and although much time has been occupied in arranging the procedure and in discussing the most promising and useful fields for activity, the progress has been satisfactory, taking into consideration the novel character of the movement, its wide scope of action, and the absence of any precedent for guidance A number of sets of lantern slides are already in circulation, including most of those sent for competition to the Exhibition, and several lectures or papers, with explanatory illustrations or examples, are also available. The programme decided upon for the present session includes a series of lectures on 'Photogravure,' with a demonstration of the practical working of the process. Although the direct advantages arising from the movement have as yet hardly had time to become apparent, there is a hopeful prospect that it will not only benefit photography, but will strengthen the Society."

We are requested to note that there will be a Technical meeting on Tuesday next, February 28th, at 50, Great Russell Street, when Colonel Stewart will open a discussion on "Panoramic Photography," and show his "Panoram." Other panoramic apparatus will be on view. To be followed by the adjourned general meeting.

London and Provincial Photographic Association.

February 15th.—Mr. E. Clifton in the Chair.

Mr. F. W. Harrison described and demonstrated the use of the air-brush in working up photographs. A current of air forced by foot-bellows at high pressure was divided into two portions. One agitated a needle-point so that it worked to and fro, from a reservoir of colour to under the fine tube from which the other current issued, and so the finely divided spray was blow out over the part of the photograph desired to be darkened. A plain, chalky-looking enlargement was taken, and, in the course of the demonstration, converted into a presentable picture. Specimens were also shown of work executed entirely with the air-brush on plain paper. One of these, a head of a boy nearly life-size, was said to have been done in 4½ hours, whilst a day and half or two days would have been required to produce a similar effect in any other way.

Mr. A. Haddon inquired whether lights could be put on.

Mr. Harrison replied that white, spread thinly, produced a bluish effect, and was not satisfactory.

Mr. P. Everitt suggested that the instrument might be useful for fitting up the background of a negative for vignetting.

Mr. Harrison, remarking that the air-brush was extensively used in American studios, inquired how it was that it was so little employed here.

The Chairman and Mr. Everitt thought that the expense was too great, and that many more would be in use at a somewhat lower charge.

National Association of Professional Photographers.

The third annual meeting of this Association was held in Manchester on Thursday, February 9th.

The Chairman (Mr. Thos. Fall) briefly reviewed the progress of the N.A.P.P. since its commencement, and strongly emphasised the necessity of having one representative purely professional society. The early experiences of the N.A.P.P. had resembled those of all new associations, and had included great difficulties, but the worst were now past. The Council proposed to push the social element, and strongly recommended an effort to affiliate with some existing or projected body, preferably in London, by means of which, while holding their own purely professional meetings on a special meeting-night, they could also arrange to meet one or more provincial members, whenever they might be in London. The proposed New Central Club seemed likely to offer exactly the advantages they wished for; and they, as a body of 150 representative professionals, could form a very strong and helpful section of any photographic society they joined.

Hackney Photographic Society.

Ordinary Meeting held Tuesday, February 14th.—Mr. R. Beckett presiding.

The Hon. Sec. reminded members of the lecture on "Photogravure," at Bloomsbury Hall. Cadett's plates (100 Hurter & Driffield) were then handed round. Messrs. Grant, Barker, Gosling, Dean, and the Chairman showed various kinds of work. Some discussion ensued on a print developed with amidol by the Chairman, which was satisfactorily developed in 2½ minutes.

Mr. A. Barker asked was there any tendency to destroy the transparency in the shadows?

The Chairman said not so much as iron, which was too energetic when fresh.

Mr. Nunn asked was there any advantage in stopping down when making lantern slides?

Mr. S. J. Beckett said no advantage would be gained, if lens was good, in stopping down beyond what would cover the lantern plate.

From the question box:—Can an ordinary magic-lantern lens be used for enlarging purposes? The answer given was that it could for 3¼ square or parts of ¼-plate. The front tube would have to be drawn right out or an addition made The projecting lens should be good or slightly stopped down.

Mr. W. H. Sodeau then gave a very interesting paper on "Photo-Chemicals." The principal subject he dealt with was their keeping qualities. He attributed the power of keeping according to the atmosphere. A list of deliquescent chemicals was given. He advocated the use of glass stoppers which, if *stuck* at any time, could be tapped or put in warm water.

The Hon. Sec. had seen vaseline recommended.

Mr. Gosling said he generally found warming in the hand sufficient.

Mr. Sodeau proceeded to say caustics corrode the glass and sometimes join the stopper to the neck. Indiarubber corks were useful, but should not be used for benzine or like compounds. Developing agents were best kept in an acid condition or filled up to the stopper of the bottle, or ordinary wash bottle can be used, if paraffin is kept on the surface of the liquid. He recommended the use of vaseline inside the neck of the bottle for substances which creep up the side.

In answer to questions raised by the Hon. Sec., magnesium should be kept in well-corked bottles; metabisulphite potassium would keep fairly well in paper if in large lumps, though not advisable; the strength of anhydrous soda was about twice the strength of the ordinary carb. soda. Sulphurous acid would only turn to sulphuric by oxygen.

Mr. S. J. Beckett asked, "Will recrystallised hypo be as effective as before?"

Mr. Sodeau said about 5 : 4.

Numerous questions were asked, but owing to lateness of the hour the debate would stand adjourned until next Tuesday.

Arrangements for March:—

7th.—"Winchelsea and Rye" (lantern night), Mr. A. Brooker.

14th.—"Photography applied to the Detection of Crime," Dr. P. Jeserich.

21st.—Open night.

28th.—"London Street Cries" (lantern night), E. Scamell.

West London Photographic Society.

On the 14th instant, Mr. A. Horsley Hinton read, before this Society, a paper entitled London Photographic "Specialisation in Art Work."

He advocated close and serious study of Nature in all her moods, confining such study preferably to a limited area, or, at least, to one class of scenery, until the photographer should find the conditions most favourable to the best rendering of the subject he might wish to reproduce. Under such circumstances, he would find beauties in Nature that would not be apparent at the first or second visit to the scene, and he would be better satisfied with his ultimate impressions than with the first momentary ones.

In the discussion which ensued, Mr. Tripplin, whilst paying full deference to the views of Mr. Hinton, pointed out that photography was elevating in itself, and that too high a standard of refinement in photographic work should not be universally insisted upon. The majority of members were business men with limited time, and could derive great pleasure from their photographic work if they secured a picture of a view that pleased them, even though it might not possess all the qualities of a work of art. He admitted, however, that by working to a high standard degeneration was prevented.

Mr. Whiting insisted on the importance of education in picture-making, and suggested that great good would result from the forming of a class of instruction in art. The rules of art and composition should be well instilled.

Mr. Hinton, replying to the previous speakers, pointed out the difficulty of ascertaining what it is in a picture which pleases, and of securing it. He stated that the photographer's aim should be to catch the sentiment of the subject as far as possible. He would not be bound by rules of composition, which were scientific, and thus opposed to the artistic. He suggested that good would be derived from competitions in the illustration by photography of a given subject.

Mr. Selby disagreed with Mr. Hinton on the importance of rules of art, stating that it is necessary, particularly at first, to have a grammar to work upon.

Mr. Winter agreed with the objections of Mr. Hinton to rules of art, and deprecated the copying of the methods of the painter. He would take what was pleasing to the eye, and he strongly urged the advisability of cultivating the technical side of photography as an aid to the pictorial side. Mr. Winter concluded with a candid criticism on some of the photographs exhibited by Mr. Hinton, and the discussion closed with a vote of thanks to the lecturer.

North Middlesex Photographic Society.

Forty-three members, and several visitors, assembled, on the 13th inst., to assist at a demonstration on "Enlarging," by Mr. H. M. Smith, of the Eastman Company.

Mr. Smith commenced with the subject of large cameras and direct prints. He said that he would use, by preference, nothing but small-sized cameras, and enlarge. He, in fact, went farther and said he now used nothing but a hand-camera for outdoor work; it was the greatest mistake possible to suppose that a hand-camera was only suitable for snap-shots; when it could be used on a tripod, as most of those now on the market could, he maintained that work could be done with it in every way equal to that done with the ordinary camera, and he had made many enlargements from such negatives.

He then dealt with the manufacture of bromide paper, explaining the old method of coating by hand, and that now generally practised, of coating a roll of paper about a mile long by 42 inches wide, by passing it through a trough containing emulsion, then over iced rollers to cool, whence it was carried to the roof of the building, where it hung in festoons of about 30 feet each to dry. The paper was thus prepared much more perfectly and cheaper than by the old method, as 9 miles of such paper could be turned out in 24 hours. The paper was packed in dozens, eleven sheets facing one way and the twelfth the reverse, thus enabling the user at once to see which was the film side. He also referred to the absence of glaze on the surface, making it very suitable for working on with colours.

Passing then to the actual enlarging, he recommended amateurs to stick to daylight, as giving the best and most even results. The best way to find the proper exposure was to make a trial on a small piece of paper immediately before exposing on the large sheet, and modifying that according to the result shown by the trial. He was of opinion that the ferrous-oxalate developer was still the best for bromide paper, and the formula given with their paper could be relied upon. He then developed in succession three prints of the interior of Salisbury Cathedral, one correctly exposed, the second under-exposed, and the third over-exposed, using the normal developer for each, and showing what the result of under and over exposure was, at the same time explaining how these errors of exposure could be corrected by strengthening the developer, by adding more iron for the under-exposed paper and weakening it for the over-exposure.

Replying to questions, Mr. Smith said he did not recommend magnesium ribbon as an illuminant, because one could never tell exactly what condition the ribbon was in, and this would cause considerable irregularity in the illumination. The household gas, too, was not suitable, on account of the prolonged exposure required, which would be found somewhat troublesome. Paper had been kept as long as four or five years after manufacturing before exposing, and yet was found in perfect condition. He did not recommend toning with uranium for sepia tones, because the deep shadows were liable to bronze, giving anything but a pleasing effect.

An extremely enjoyable evening was brought to a close with a vote of thanks to Mr. Smith for his demonstration.

Croydon Camera Club.

The following officers and council were elected at the annual meeting on February 13th, 1893:—

President: H. Maclean, F.G.S. Vice-Presidents: The Mayor, F. Foss, J.P.; the Hon. Sydney Herbert, M.P.; F. T. Edridge, J.P.; and B. Gay Wilkinson. Treasurer: A. J. Sargeant. Council: Messrs. Frost, Hirst, Holland, Isaac, Neenes, Oakley, Packham, and Wratten. Hon. Sec.: G. R. White. Hon. Assistant Sec.: S. E. Burrows.

Leytonstone Camera Club.

Ordinary Meeting, held February 15th.—T. Watson Brown, M.A., in the Chair.

Mr. H. E. Farmer, before a large attendance, read a paper, "Lantern Slides, and how to make them," with demonstration. He started by commending lantern-slide-making to those present as being, in his opinion, the most fascinating branch of photography, explaining how easy it was for the beginner, with his ¼-plate camera, to succeed with slide-making; he next went on to show the advantage of slides over prints as a means of entertaining friends, who will sit a whole evening looking at photographs on the screen, where they would be satisfied after half-an-hour with an album of prints, to say nothing of the advantage of a large number being entertained at the same time. The lantern slide, after all, was only a print upon glass instead of paper. He next described the essentials of a good lantern slide; it should be perfectly sharp, with perfect gradation from the highest lights to the deepest shadows. He next went on to the making both by contact and reduction. Dodging was next shown, intensification, reducing, &c. A discussion followed. The Chairman complimented Mr. Farmer upon his very able paper, which clearly demonstrated that he was master of his subject, and, at any rate, an authority upon lantern slides.

Liverpool Amateur Photographic Association.

This Association held their weekly meeting in the Club Rooms, Percy Buildings, Eberle Street, on Thursday, February 9th.

Dr. Chas. A. Kohn, of the University College, delivered to the members a very interesting lecture, the subject being "Chemistry of Photography." He illustrated his remarks with interesting experiments, in a very clear and lucid manner demonstrating the action of light and formation of the latent image on the photographic plate. Other similar practical lectures follow every Thursday until the end of April.

On Thursday, February 16th, Mr. W. T. Wilkinson gave a lecture and practical demonstration, specially intended for beginners, on the camera and the use of its different parts; lenses, explaining the properties of the various lenses in the market, what was claimed for them, and the best lens for the different subjects; exposure-meters, their use, and the mode of working, concluding with a few suggestions on shutters for time and instantaneous work.

Thursday, 23rd instant, monthly meeting. Mr. F. Clibborn's lantern lecture, "A Little Tour through Ireland." Slides by Mr. G. E. Thompson.

Leicester Photographic Society.

At the regular meeting, held on the 10th inst., in the Library, Old Town Hall, the President (Mr. J. Porritt), in the chair, one member was elected and two proposed. It was decided to hold the meetings on Thursday, instead of Wednesday, after the summer recess.—The President then read a paper by Mr. S.B. Webber, of Bromley, on "Isochromatic Photography," who sent a large number of paintings, transparencies, and fifty lantern slides to illustrate his subject, and proved a most useful stimulant to the members who work in that direction. The results of isochromatised plates were still more definitely shown by the useful method of showing two prints or lantern slides of the same subject with iso and plain plates, and which were exceedingly useful in showing the value of the prepared plates. The church windows shown by Mr. Webber were admirable examples of the process, as, also, several differently coloured chrysanthemums in variously coloured vases; also, several other tests in colouring, as wools, cloth, &c., which amply illustrated the utility of the process in colour photography, and in maintaining the value of the visual colour scale. A hearty vote of thanks was proposed to Mr. Webber for his useful paper, and to Mr. Porritt for his kindness in procuring so interesting a subject.

Birmingham Photographic Society.

A large and appreciative audience assembled in the large lecture room of the Y.M.C.A., Needless Alley, on the evening of Tuesday, the 7th inst., when an exceeding interesting paper was read by Mr. C. J. Fowler on "The River Severn from its Source to the Sea." The lecture was illustrated by a series of excellent slides, some three hundred in number, which are the outcome of a survey of the river undertaken in 1891 by Messrs. Middleton and Fowler, when upwards of four hundred pictures were secured. The course of the river, from the point where it rises in a swampy hollow on Plinlimmon to its reception by the Bristol Channel, is replete with interest, and some of the more famous places, such as the cathedrals of Worcester and Gloucester, Berkeley Castle, Buildwas Abbey, Much Wenlock Priory, Tewkesbury, Bridgnorth, &c., &c., of which very fine pictures were shown, elicited hearty applause. In addition to this the completeness of the subject added very much to its interest.

Newcastle-on-Tyne and Northern Counties' Photographic Association.

The ordinary monthly meeting will take place on Tuesday, 28th inst., at 7.30 p.m. Business:—"A Talk on Copying by Artificial and Day Light, with Demonstration and Exhibition of Negatives," by Edgar G. Lee and James Brown.

Sheffield Photographic Society.

The ordinary monthly meeting of the above Society was held at the Masonic Hall, Surrey Street, Tuesday evening, February 7th, Mr. B. J. Taylor in the chair, when, after the routine business, Mr. J. W. Charlesworth opened the discussion, "Was Amidol a Good Developer for Lantern Transparencies?" which was taken part in by most of the members present, and eventually decided that, given a good negative, warm tones could be produced. After which the following excursions for the season were arranged:—York and Knaresborough, May 3rd; Castleton, June 7th; and Peterborough, July 12th; and also that members who could should join the Rotherham Society's trip to Ingleton some time in May.

Bristol and West of England Photographic Association.

Meeting, February 10th.

Mr. G. Davey was elected a member. It was decided to hold the meetings fortnightly instead of monthly, and that a question-box should be started.

Mr. Gerald Grey described the numerous beauties of Winchester and neighbourhood, illustrating them by some very good slides.

Photographic Society of Ireland.

A special meeting of this Society was held at 15, Dawson Street, Dublin, on Friday, 17th inst., Professor J. A. Scott, M.B. (President), in the chair.

A very interesting demonstration of experimental illustrations of various forms of silver reduction was given by Mr. Emil A. Weiner, who went exhaustively and lucidly into his subject, and showed how separation was accomplished by the aid of pyrogallic acid, hydroquinone, eikonogen, and amidol. He demonstrated how these bodies acted on the silver of the dry plate. The lecturer also showed Carey Lea's method of producing "golden" silver and "blue" silver, and produced some very beautiful results by coating glass tubes and dishes with the product.

A method of producing several of the negative images whilst developing was also shown by Mr. Alf. Weiner.

A vote of thanks to Mr. Emil Weiner brought the meeting to a conclusion.

Liverpool Amateur Photographic Association.

Prospective Engagements.

March 2nd: Lecture by Mr. W. T. Wilkinson, Development of Dry Plates by various formula. Reducing and Intensifying.—March 9th: Lantern lecture by Mr. J. Sheard, "Our Members of Parliament, and something about some of them," with lantern-slide portraits of members.—March 16th: Lantern lecture by Mr. F. Hope-Jones, on "Emral," the Deserted Mansion of the Puleston Family, on the River Dee.—March 23rd: Lecture and demonstration on the "Frena" system of hand camera, with diagrams and lantern-slide illustrations by Messrs. R. and J. Beck.—March 30th: Monthly meeting. Lecture and practical demonstration by Mr. W. I. Chadwick, of Manchester, with the lantern microscope, with special reference to the optics of the lantern and condensers.—April 6th: Lecture by Mr. W. T. Wilkinson, "Printing and Toning on Albumenised and Print-out Gelatine Chloride Papers, Vignetting, Clouds, &c."—April 13th: Lecture by Mr. W. T. Wilkinson, "Printing by Development on Alpha and Bromide Paper Opals. Lantern Slides by Contact."—April 20th: Lecture by Mr. W. T. Wilkinson, "Printing on Carbon and Platinum. Enlarging Direct and from Transparencies."—April 27th: Monthly meeting. Lantern lecture by Mr. E. M. Tunstall, "Picturesque Holland."

Newcastle-on-Tyne and Northern Counties Photographic Association.

A Members' Social will take place at the Art Gallery on Tuesday, the 28th inst., to which Messrs. Barkas & Son kindly invite the members. It has been decided to accept this invitation, and in consequence the meeting announced for that night on last circular will not be held. The meetings for next month will be as follows:—Tuesday, March 14th, at 7.30 p.m., ordinary monthly meeting. Business: Minutes; election of new members; "Copying by Artificial and Day-Light, with demonstration and exhibition of negatives," by Edgar G. Lee and James Brown. Discussion to follow.—Tuesday, March 28th, at 7.30 p.m., social or conversational meeting. Members are asked to bring prints, negatives, apparatus, or anything which may promote useful discussion, and the question-box will be on the table.

The Photographic Society of Japan.

At a meeting of the above Society, held on Friday, December 2nd, Messrs. W. K. Burton and K. Arito showed the results of a set of experiments with plates stained with picric acid neutralised with ammonia (presumably picrate of ammonium) to prevent halation. Mr. Burton had, some years ago, tried the effect of staining films with various dyes to prevent halation, but had not been very successful. As a rule, if halation were prevented, the plate was much slowed, or there was great difficulty in getting density. With picric acid this was not so. The sensitiveness was somewhat reduced, but not much, whilst, so far as density was concerned, the difficulty had, up to the present, been that too great density had been got in every case. The picrate did not seem so much actually to slow the plate as to act as a retarder in development. This necessitated a developer strong in alkali; and, even with very small proportions of pyro, or of eikonogen, the density came up too great Doubtless further experiments would lead to the discovery of a remedy. The next were to be made with plates coated with emulsion with which picric acid (or picrate of ammonium) had been mixed. Both halation and solarisation were completely prevented.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

H. C. L.—If the acid-clearing solution causes your plates to frill, use citrate of soda. This will at once get rid of the milkiness in the film, if it be due to oxalate of lime as you suggest.

Finisher.—The air-brush may be obtained in this country from Messrs. Ross & Co., the well-known opticians of Bond Street.

Streaky.—The fault is probably due to scum on your silvering-bath. You may filter it, but possibly the difficulty will disappear if you draw a piece of clean blotting-paper over the surface of the liquid, so as to catch up the impurities.

Emulsion.—1. We must refer you to the text-books and to back volumes for emulsion formulæ. 2. The ammonia-nitrate method is certainly suitable for the purpose which you have in view. 3. Unless you are an absolutely idle man it will never pay to make the plates.

Traveller.—There is no difficulty in procuring compressed oxygen in New York. We believe, indeed, that it was a commercial article in the States long before it appeared as such on this side of the Atlantic.

W. P.—The best waterproofing material for a wooden dish is paraffin wax in a melted state, applied after the wood has been well heated. Hypo solution has no effect on this coating as it has on others—notably those containing resin.

A. C. O.—A fair price for your scrap platinum at the present state of the market would be 30s. per ounce. Of course, you cannot buy it at that, but buying and selling are different processes.

Phœbus.—For photo-mechanical negative work we prefer pyro as a developer. The quinone gives a blacker deposit, but it is not so impervious to light rays as the yellower pyro-developed image. Wet plates are generally preferred for this work, because of the greater certainty of obtaining opacity in the hands of the inexperienced.

* * *

At the annual general meeting of the Photographers' Benevolent Association, which was held on Monday last at the parent Society's rooms, the President, Mr. Taylor, expressed his regret at having to resign his position, owing to his doctor having ordered him to withdraw as far as possible from all evening engagements. Mr. Spiller, the treasurer, in presenting his report, was able to congratulate the members upon an unusually good balance-sheet, owing to the windfall of fifty guineas which had come to them through Dr. Lindsay Johnson, and also to a reduction in the calls upon their purse. Mr. George Mason was nominated for the presidency of the Association, and was elected unanimously.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

PATENT OFFICE LIBRARY

VOL. XXXVII.—No. 1800. MARCH 3, 1893.

NOTES.

THE Exhibition of the Blackheath Camera Club opens to-day, in the Hall of the Art Club, under the presidency of the Astronomer-Royal. It includes both photographic pictures and apparatus, and lantern shows will be given both to-night and to-morrow night, when the Exhibition closes.

MR. VAN DER WEYDE's method of altering a photographic negative, so that certain parts may be reduced or enlarged, which he brought forward at the last exhibition at the Camera Club, has, we learn, been much improved. Whereas previously a new negative had to be made, the necessary corrections can now be executed on the original negative while it is being produced in the camera. We learn that this invention will shortly form the subject of a paper to be read by Mr. Van der Weyde before the Society of Arts.

MR. T. C. HEPWORTH will read a paper on Photography and Journalism, at the Camera Club, on the 23rd instant. The lecture will be illustrated by lantern pictures, and by original drawings, negatives, process blocks, moulds, stereotypes, &c., kindly lent by the proprietors of the *Graphic* and *Daily Graphic*.

MESSRS. MORGAN & KIDD showed us last week an immense enlargement, the biggest thing which has yet been produced on bromide paper. It was a beautiful picture of Miss Julia Neilson as Hypatia. The paper on which this picture is made has a breadth of 53 inches, and is coated at the Richmond works in a large building, which has been recently erected for the special production of this elephantine paper.

ONE might well say that one touch of photography makes the whole world kin. Another link in the chain is furnished by photo-zincography, which is now becoming a necessary industry in different quarters of the globe. A few years ago some Chinese printers wrote to an English firm, asking for the services of a practical man capable of teaching the art completely to Chinese workmen. A suitable man, however, not being forthcoming, the firm sent over two Chinese workmen to learn the art. They returned to China skilled in the art both of lithography and photo-zincography, and doubtless by this time have imparted their knowledge to scores of their countrymen.

MR. A. COMMON, at the request of the Council of the Royal Astronomical Society, has undertaken the arrangements necessary to secure such a collection of astronomical photographs for exhibition at the Chicago Exhibition as will be fairly representative of British astronomical photography. The matter was brought before the Society at its last meeting, and the members invited to assist by sending contributions.

IT has been remarked by a contemporary, *àpropos* of the disappearance for several days of a young German prince, that were such a thing to happen in England, detection of the runaway would be very easy, on account of the numbers of photographs which exist of every member of the Royal family. On the Continent, however, and particularly in Germany, photographs of royal personages are not so common as they are here. Our contemporary suggests that either sittings from them are not so easily obtained, or photographers are not so enterprising as they are in this country. There may be yet another reason ; royal portraits are not in such great demand abroad as they are in England. Possibly German princes are so numerous as to excite very little interest. Anyway, one instance of the difficulty of obtaining photographs of these personages was seen when the engagement of the Princess Beatrice was announced. The news came quite unexpectedly, and for a whole fortnight the photographic print-dealers and the editors of the illustrated papers were tearing their hair, and all because one fortunate young man had not taken the precaution to be photographed.

Some of the shareholders in Eastman's Photographic Materials Co. (Limited) naturally expressed their disappointment at the meeting last week at the non-declaration of a dividend. The cause was fully explained by the Chairman (Col. Griffin), Mr. A. Pringle, and Mr. W. H. Walker (the late managing director). It seems that a formula for the preparation of the film was sent from the parent company in America, and a large quantity of material was manufactured in readiness for the demand which the company had a right to expect. Unfortunately, towards the end of the year, a defect, not suspected at the time of preparation, manifested itself, and the consequence was that not only had purchases of the faulty film to be made good, but all the existing stock had to be destroyed. This is one of the contingencies connected with the manufacture of sensitive plates and film, which all photographers will understand, though it may not be so obvious to the non-photographic public. Mr. A. Pringle has now undertaken to personally test every batch, and his opinion is that, during the six weeks he has done this, the film is equal to the best ever sent out.

Mr. W. P. Frith, R.A., has not forgiven photography. In his "Reminiscences" he said some severe things about the art, and in an article in this month's *Magazine of Art* on "Reginald Easton, Miniature Painter," there are indications that he still bears it a grudge. With his remarks that engraving is dying a lingering death from its attacks, and that miniature work has suffered severely, one may be disposed to agree; but when he makes a comparison between the old days of the supremacy of miniature painting and the present photographic times, has he quite made sure of his facts? He says, in the old days at Somerset House, a special portion of the great room was set apart by the Royal Academy for the display of miniatures, and then he exclaims: "How different to the public of to-day, which prefers a coloured photograph, the product of a machine."

If this be so, will Mr. Frith tell us where these coloured photographs are to be found? for we believe photographers are unable to answer the question. What photography did to miniature painting was to make the exponent of the artificial La Creevy style impossible. The real artists were not driven away, although for a time their ranks were not added to. The case of Mr. Reginald Easton, on whom Mr. Frith pours his laments, is scarcely an example of the injury inflicted on miniature painting by photography. Mr. Easton took an erroneous view of his own art, under-estimated its own worth, and it was not extraordinary that his patrons accepted his own valuation. When Mr. Frith begged him to charge his sitters more, he said: "No, they wouldn't pay me better; they would get themselves photographed, and then ask me to touch them up a little, and I don't want to encourage this kind of thing."

When the foremost miniature painter in England could think of no other way of competing with photography but on the battle-ground of cheapness, there could be but one end to miniature painting as represented by the rank and file. The art of miniature painting is a beautiful one, and its vitality is shown by the way in which it is again coming to the front. The "photographic fiend," as Mr. Frith calls it, has done more good than harm, as the leading miniature painters of to-day would, we believe, admit. But for photography they might still be investing womankind with the simpering, inane features which at one time were inseparable from the greater portion of miniature work.

The Photographers' Association of America will be holding their Convention in Chicago at about the same time that their English brothers will be meeting at Plymouth, for the two conventions both meet in July. While the English company spread their operations over a week, the Americans confine theirs to four days. But, then, the former will be indulging in excursions into the surrounding country half the time, while the latter will stick closely to business. Particulars of the Chicago Convention can be obtained of the Secretary, Mr. Adam Heimberger, New Albany, Indiana.

The *Photographer's Record* — the little monthly paper published by Messrs. Elliott & Son, of Barnet — contains a note of warning about fogged plates which is worth attention by all careful workers. A photographer on the South Coast complained of fogged plates, and the mischief was traced to the ruby glass of his dark-room window, "which was found to have faded in a very marked degree." We all know that ruby fabrics, which are mostly coloured with an aniline dye, will quickly fade under the action of sunlight, but ruby glass should be permanent if properly prepared.

GELATINE EMULSION MAKING.

At the Camera Club, on Thursday evening last, Mr. Andrew Pringle gave a very able exposition of modern gelatine plate-making, a subject which he introduced with a kind of half-apology because, as he put it, many think that time devoted to the scientific side of photography is time misspent, and he hinted that some members of the Club were notoriously of that opinion. However that may be, it is certain that the members present took a great interest in the subject in hand, and followed Mr. Pringle's explanations and demonstrations with unflagging attention.

The lecturer began with the acknowledgment that commercial plates were now to be had of such excellent quality that any ordinary photographer would be extremely foolish to make his own emulsion. With amateurs it is different. The great majority know little or nothing about the principles involved and the manipulations necessary in making an emulsion, and it is certain that this is to be deplored ; for, as a painter profits by knowing the qualities and peculiarities of the pigments which he uses, so is it beneficial to the photographer to have a knowledge of the materials which he employs in his work. And the work has the merit of being attractive, and so attractive is it that very few there are who do not find their mental powers tickled and pleased with the operations involved in making an emulsion, so that when they have succeeded once they will fly to fresh fields and pastures new in the trial of other formulæ.

It is comparatively easy to make a *slow* emulsion, and the lecturer ventured to say that, with the brief instructions which he was about to give, anyone in the room would be able to succeed in the work. But with a *rapid* emulsion things were very different, for the attempt to endow an emulsion with the gift of extreme sensitiveness was at once encumbered by difficulties. The tyro is advised, therefore, to begin with a slow emulsion, and the necessary operations will now be described step by step.

The making of a large batch of emulsion, say a gallon or two, is somewhat different to the concoction of, say, ten ounces, which is as much as a beginner need trouble himself about. In the large quantity errors of weighing and measurement are not so likely to occur as when a few ounces of emulsion are in question. Having fixed upon the amount of emulsion to be made, say ten ounces, we have next to consider how much silver bromide will be necessary to afford an emulsion of good quality. Let us put it roughly at 200 grs. Referring now to Acland's photographic scale of equivalents we find that to neutralise 183 grs. of silver nitrate we shall require 128 grs. of potassic bromide. It is necessary to have a certain excess of bromide, some say 10 per cent., but the lecturer advises about 6 per cent. In round numbers, therefore, we have 180 grs. of silver nitrate and 140 grs. of potassic bromide.

The bromide is now mixed with water, 4 ounces, with about 8 grs. of gelatine ; the silver is mixed in a separate vessel with 2 ounces of water, and, after both solutions have been heated to, say, 100° Fahr., they are taken into the dark room and mingled together gradually and with much stirring or shaking. An alternative method is to put the silver into the bromide solution in crystals and to shake until they are dissolved. It will be observed that the quantity of gelatine employed here is very small, and intentionally so, for the emulsion has to be brought to boiling heat, and, if it contained the full bulk of gelatine which it is intended to have, the heat would decompose it, and its setting properties would disappear. To obviate this the bulk of the gelatine is added after the emulsion has been boiled and cooled down to, say, 100° Fahr.

The emulsion is not put direct on to a fire, but is heated in a vessel like a glue-pot, or what is known in the kitchen as a *bain-marie.* If, when first emulsified, the gelatinous liquid is viewed by transmitted light by being smeared on a piece of glass it will be a dark ruby colour. This gradually changes during the heating operation to violet and afterwards to blue. If the operation is stopped here the emulsion will be fairly rapid, and will correspond in sensitiveness to many commercial "landscape" plates. But if we continue the boiling for, say, double the period necessary for bringing the emulsion to the blue stage, we shall get a very rapid emulsion, but with the risk of spoiling the mixture altogether. As the colour changes the particles of silver bromide get coarser and coarser, and it is interesting to watch this change by examining samples of the emulsion microscopically as the boiling operation proceeds. It may be mentioned here that one of the safeguards against a fogged emulsion is the employment of the purest chemicals which can be obtained. As a matter of fact a pure bromide emulsion is not often used, a crystal of iodide (say iodide of cadmium) being added after the emulsification. This makes the emulsion distinctly yellow, and the staining action is beneficial in allowing a more liberal amount of non-actinic light in the dark room and in other ways.

Mr. Pringle then pointed out that there was an alternative method of emulsifying which obviated the boiling process, namely, the ammonia-nitrate process, in which strong ammonia was added to the silver nitrate solution until the brown precipitate of oxide thrown down was just redissolved. Personally he was rather sorry that this method had been introduced (its discovery was claimed both by A. L. Henderson and by Monckhoven), for he thought that it had had an adverse effect upon the general quality of commercial plates, though it was largely adopted by plate-makers.

It was then pointed out how in the washing operation necessary to get rid of the soluble salts the emulsion was freed of the by-products which would be injurious to it, while the non-soluble silver bromide remained intact. Several methods of freeing the emulsion from the soluble salts were described, including straining through canvas, precipitation with alcohol, using a plunger in a cylinder with a wire-gauze bottom, and the centrifugal separator. The latter method found most favour with the lecturer, who pointed out that an emulsion could be washed too much, and it often became necessary to supply it with some fresh bromide salt so as to avoid fog.

Whatever be the method employed for washing the emulsion it must afterwards be filtered through wash leather or swansdown calico, and it is then ready for coating the plates.

For coating, a measured ladle of silver is recommended, while for cooling and setting the gelatine a sheet of glass, slate, or marble may be employed—properly levelled and crossed by cords or piano wire to prevent plates sticking to its surface. It is best to use a measured quantity of emulsion for each plate coated, and a toddy ladle with a lip made for the purpose, and holding, say, one ounce for a 10 × 8, or half that quantity for a 7 × 5 plate, is a convenient thing to use. The emulsion will not flow over the plate quite like collodion, but will flow easily if the glass be previously breathed upon. It should be at such a heat and consistency that it will set as soon as laid down on the cold slab, otherwise the particles of silver bromide will have a tendency to settle down and the plates will be of indifferent quality.

The drying of the plates is perhaps more troublesome than all the other operations combined, and the lecturer described, and drew on the black-board, the chamber which he devotes to the purpose himself, with an arrangement by which the air is filtered before it reaches the plates, and a means of causing a full draught of air to traverse the apparatus from end to end. The lecturer concluded his remarks by pointing out that the plates suffer in quality if the drying be too quick, or if it be prolonged for more than thirty hours.

A discussion followed, in which the Chairman, Mr. Warnerke, Mr. Geo. Davison, Mr. Harrison, Col. Gale, and Mr. Hepworth took part.

The proceedings closed by a vote of thanks to Mr. Pringle, which was carried by acclamation.

PIN-HOLE PHOTOGRAPHY.

BY J. FAVRE-BRANDT.

ATTENTION has been called many times to the quality of photographs that can be obtained in a darkened chamber, or camera, without special optical apparatus, simply by means of a small hole in a very thin plate.

Amateur photographers can make pictures, pretty large in size, of landscapes, and even of monuments, without being obliged to buy lenses costing from $10 to $300.

No doubt to reproduce plans and engravings it is necessary to use the famous lenses of Ross, Dallmeyer, Beck, Hermagis, Francais, Nadar, and others. But we wish to perceive, when we examine a photograph, the particular effect which is produced on a more or less near-sighted eye by its entire surroundings, when it looks at nature from a little distance. It seems to us that suppressing the lens and replacing it by a pin-hole gives more artistic results as far as regards monuments, or landscapes without moving figures.

"Nevertheless, far from us," says the *Amateur Photographer*, "is the idea of crying down the photographic lens which has in the last year attained so great perfection ; for in the greater number of cases these instruments are, and will remain, indispensable ;" but leaving out the instantaneous photograph, which has such charm for the amateur, and the portrait, the speciality of the professional, let us confine our ambition to obtaining, in as artistic a manner as possible, either landscapes or copies of monuments ; and of these latter there are certainly no lack in Japan.

M. Meheux says that the most suitable hole is round, and drilled in a plate of copper or sheet brass of 2-10 millimetre in thickness ; it is necessary that the borders show no burr, and are bevelled, forming a cone.

Captain Colson has remarked that, although the depth of focus is unlimited, the greatest sharpness of definition for each size of hole is found at a determined distance, and he has succeeded in finding the proper focal distances for different diameters of holes ; he has thus found that :—

The best definition for a hole 3-10 millimetre is at 11 centimetre.

The best definition for a hole 4-10 millimetre is at 20 centimetre.

The best definition for a hole 5-10 millimetre is at 30 centimetre.

The best definition for a hole 6-10 millimetre is at 44 centimetre.

It may be mentioned that the size of the object to be reproduced is proportional to the distance from the apparatus, and to the distance from the hole to the sensitive surface.

It follows from this rule, that after having taken, for example, one view of an entire cathedral, with a focal length of 20 centimetres, say with the 4-10 millimetres diameter of hole, if we wish to have the details of the gate-way without moving from our place, it is sufficient to lengthen the focus to 44 centimetres, and to use the 6-10 millimetres hole.

We may further remark that the *Stenhope*—the name given to the above mentioned plates—easily includes an angle of 100 degrees, or even more, without at all deforming architectural lines, and without destroying the perspective, which is far from being the case with even the most perfect wide-angle lens.

The length of exposure presents much less difficulty than with lenses. Unless we expose enormously beyond the proper time, it is nearly impossible to over-expose ; we can always obtain a good negative by developing intelligently.

Nevertheless, if one must have a general approximate rule, we may say as a general proposition that the time of exposure is at least twenty-five times longer with the 3-10 mm. hole than with a lens focussed upon the same view and provided with a medium diaphragm ; fifty times longer with the 4-10 mm. hole ; one hundred times longer with the 5-10 mm. hole, and two hundred times longer with the 6-10 mm. hole ; it being well understood that we use the focal lengths corresponding to these holes.

But we can modify these times of exposure without over-exposing the plates ; on the whole, this depends very much on the plates, the developer, and the actinic power of the light. Experience will be the best guide for every class of picture. Just the same as in nature, the sun has here great influence on the clearness of the view, more than it has when using lenses.

To sum up the advantages of using the *Stenhope.*

(1) More artistic definition than with the lens.
(2) Unlimited depths of focus.
(3) Perfect perspective for lines in architecture.
(4) Mathematical exactness in the scale of plans.
(5) The angle of view can include as much as 170 degrees.

All the proofs, under the numbers 1, 2, 3, and 4, represent the same subject, and are taken with the same apparatus from one and the same distance, say 20 metres from the corner of a house marked A. The number representing the house and garden was taken with the 3-10 mm. hole, distance from hole to sensitive plate 11 centimetres, time of exposure 1 minute 25 seconds.

No. 2 view from the same plate with the 4-10 mm. hole, 20 centimetres from the plate.

No. 3 is taken with the 5-10 mm. hole, 30 centimetres from the plate, and finally No. 4 is taken with 6-10 mm. hole, 44 centimetres from the plate; distance between the apparatus and the house 17 to 20 metres. Time of exposure varies in the different numbers from 1 minute 25 seconds, to 2 minutes 30 seconds.—*Photographic Society of Japan.*

KALONA.

THE New York Aristotype Co., of Bloomfield, N.J., have put a new collodiochloride paper on the market under the name *Kalona.* The following instructions are issued for the successful manipulation of the new paper.

Print up to good strength, about two shades darker than required in finished print. Use direct sunlight with good strong negatives, cover weak ones with grass bleached tissue paper or two thicknesses of ordinary tissue paper.

Place paper in and remove from printing frame in subdued light, with clean hands, never allowing fingers to touch the surface, as red spots result.

When ready to commence toning place prints singly, face downwards, in as shallow water as possible to prevent curling, or, better, first dip prints in warm water, 115 degrees Fahrenheit, and then quickly place face downwards, on a slightly inclined tray, gently patting them until no tendency to curl is noticed. Allow them to remain thus from eight to ten minutes, then continue washing until all milkiness disappears. Gradually reduce temperature of each successive wash water. Rock dish gently to separate prints between each change. Use cold water for final washing before toning.

The following toning baths will be found to give good results :—

No. 1.

Water	48 ounces.
Acetate soda	75 grains.
Borax	75 grains.

Add neutral gold enough to tone.

No. 2.

Water	48 ounces.
Phosphate soda	90 grains.

Add neutral gold enough to tone.

No. 3.

Water	48 ounces.
Tungstate soda	150 grains.

Add neutral gold enough to tone.

Have plenty of bulk to toning bath, so that each print is singly and thoroughly saturated. Toning baths should be made up at least twenty-four hours before using. Be sure toning bath is slightly alkaline at all times, testing occasionally with litmus paper. The toning bath should not work too quickly, from eight to twelve minutes for each batch of prints. After prints are toned place in large intermediate water bath before fixing.

Fixing Bath.

Hypo	3 ounces.
Water	64 ounces.

Fix not less than fifteen minutes, keeping prints in constant motion. After prints are taken from fixing bath a thorough rinsing in four or five changes of water is necessary to remove the excess of hypo before placing in trays or tanks for final washing.

The complete elimination of hypo from the prints is absolutely necessary, for any of it remaining causes discoloration. Therefore, do not allow prints to lie in a mass at the bottom of washing sink. Move them about and separate them one from another. One hour's good washing done as above is sufficient. Do not leave prints in water over night.

Mount in the usual way, using any good stiff paste. Use medium hot burnisher.

A NEW IMPROVEMENT IN THE PLATINOTYPE PROCESS.

BY P. C. DUCHOCHOIS.

SINCE the early ages of photography the attention of experimenters has been directed towards finding a simple process by which permanent positive impressions could be attained, none of the silver-printing methods, either by development or the continuous action of light, yielding prints of certain permanency. Among the processes which were devised, Poitevin's carbon process and Willis' platinotype are the only ones which produce photographs that can be considered as absolutely permanent.

The carbon process is well known. In the hands of skilful operators it yields splendid proofs. But the manipulations are somewhat complicated, and for this reason the process has not been generally adopted. For the majority of amateurs it is, so to speak, out of the question.

There is, however, a modification of this process which renders it exceedingly simple but then it can only be employed to reproduce designs in lines any white and black subject. It is as follows :—

A sheet of albumenised paper is sensitised from the back by spreading over a 3 per cent. solution of potassium bichromate, which is allowed to penetrate through the paste of the paper. When dry, it is exposed under a negative for a few minutes ; then, on the albumen surface one brushes, by means of a sponge, a thin coating of printing or lithographic ink, thinned with turpentine. When the turpentine is partly evaporated, which requires four or five minutes, the print is placed into cold water, and, after a period of, say, a quarter of an hour at the utmost, by brushing gently with a soft, wet rag, the albumen not acted on by light is washed out, and a proof, in greasy ink, is obtained, which only needs soaking in water to eliminate the bichromate from the paper and to obtain pure whites.

By the platinotype splendid proofs in half-tones are obtained, provided the negatives are specially made for that purpose.

As originally devised by Willis, and improved by Pizzigheli and Hübl, who made a complete study of it, the process offered some difficulties, not on account of the photographic operations, but on account of the preparation of the sensitising compound ; and, therefore, the professional and amateur photographers preferred buying the paper already sensitised rather than to prepare it themselves ; moreover, until lately the process was patented. Now it is public property, and already several improvements, to render the process entirely practical, have been published. Among them we find one not only very simple, but also economical, which Mr. Ganichot has communicated to a French paper, *La Science en Famille.*

This process is as follows :—

To prepare the sensitising solution 125 parts of dry ferric chloride are dissolved in 1,000 parts of distilled water, and the solution filtered. The iron is then precipitated as a hydrate by aqueous ammonia added in excess. This done the precipitate is washed in five or six changes of water, thrown on a filter to drain, and then dissolved in a boiling solution of 50 parts of oxalic acid in 150 parts of distilled water by adding it in small quantities until the solution is saturated and there remains an excess of oxide ; for, according to Mr. Ganichot, it is necessary that the solution be neutral and saturated.

After filtration 2½ parts of sodium chloro-platinite are added, and the solution, being diluted to 250 parts with distilled water and filtered, is ready for use. If sheltered from the luminous action—that is, if kept in perfect darkness in a well-stoppered vial—it will undergo no alteration for a long time.

As usual, the paper for the platinotype process should be sized either by arrowroot or gelatine. We have used with success the coated paper employed in the collodio-silver-chloride process. It is easily found in this market, and it is cheap.

The sensitising should be done in the dark room lighted by a yellow light, spreading the platinous mixture as equally and evenly as possible with a Buckle's brush.

It is important, says Mr. Ganichot, that the solution should not soak in the paper, else the image will be sunk in and without brilliancy. He also directs the suspension of the sensitised paper by one corner and allowing it to dry thus. This we find objectionable, and we advise the reader to desiccate the paper by heat as soon as it is surface dry. It is then ready for use.

Under a negative of ordinary intensity, the image appears rapidly. The image should be printed until it is visible in all details, when the proof is removed from the printing frame and developed in the dark room or by a very diffused daylight.

The development is made by immersion in a solution of—

Oxalic acid.....................................	25 parts.
Sodium chloro-platinite	2½ „
Water..	250 „

The image appears rapidly, increases in intensity, and (partly) loses the reddish yellow tint due to the ferric oxalate.

The sodium chloro-platinite added to the developing solution is useful ; it gives up the platinum necessary for the complete formation of the image, the quantity held in the paper not being sufficient.

As in all the printing process, the development should be stopped when the image has acquired the proper intensity, for it loses nothing by the subsequent washings. Mr. Ganichot does not state whether the washing should be first done in an acid solution. But it is evident that it should be so, to entirely eliminate the iron salt and thereby to obtain pure whites. Therefore we advise a preliminary washing in a 2 per cent. citric acid solution, twice renewed before the final washings in pure water.

This process, exceedingly simple and by no means expensive, possesses the advantages of yielding proofs without exaggerated contrasts, and, besides, states Mr. Ganichot, owing to the use of the sodium chloro-platinite the paper is not affected by dampness. In this we do not agree with the author : the salts of iron, notably the bichromates, act on organic matters even in the dark, and the photo-preparations in which they are present lose their good qualities in a certain period ; moreover, generally the ferric salts—the oxalate, for instance—are always more or less hygroscopic, and dampness, as it is well known, should be avoided in the platinotype process. Hence it is advisable, not only to desiccate the paper soon after it is sensitised, as has been said, but also to keep it in a chloride of calcium box, similar to that used for silver albumen paper.

We must also observe that the platinum paper gives the best results when it is newly prepared, and, as the preparation is very simple and expeditious, it will be well to prepare only the quantity of paper for one or two days' use.

"Notwithstanding the constantly increasing price of platinum, the process is yet economical, for the quantity of platinous chloride entering into the preparation of the paper is small, so that the proofs, when finished, cost hardly one quarter as much as those obtained by the silver printing-out process, and they possess the inestimable quality of being unalterable."—*Anthony's Bulletin.*

THE PLAGUE OF MEDALS.

BY HECTOR MACLEAN, F.G.S.

IN view of the appalling deluge of gold, silver, and bronze, raining upon the photographic world in the shape of medals, which in too many cases represent premiums of considerably less intrinsic value than the cost of the material from which they are made, a few remarks upon the present want of system in bestowing "metallic honour" upon candidates for fame are not uncalled for.

The practically unlimited multiplication of worthless, or comparatively worthless, tokens is not only undesirable in itself, but is, moreover, a very grave injustice to those who have in past times nobly earned their rewards by work well done; for it is in most quarters admitted that in our degenerate days to be merely the winner of a medal is to receive no more distinction than is a peerage in that all-honoured community sung of by W. S. Gilbert, where "dukes were three a penny."

The question is, How shall we restore to this should-be precious emblem of success its pristine value? No doubt there are more ways than one in which this may be effected. In the present communication I do not intend to try and exhaust the alteratives; let me, however, in passing, say that it would be well if at its next gathering the Photographic Convention should, putting on one side some of the highly-diluted topics in which it seems to find a calm delight, bring this question to the forefront, and seek by some authoritative *pronunciamento* to stay the cruel kindness of those who are in truth burying photography beneath a heap of metal discs.

Let there be no mistake: I am not protesting against tangible rewards. I can even bear with that somewhat maligned individual, the pot hunter; for, if one man can by superior ability sweep the board, why should he not do so?—providing, of course, that this be not effected by means of a plucky production, but by sustained and repeated excellence. All I urge is that a medal shall be an honest certificate that the winner has done something notably praiseworthy.

The first step to take in bringing about the much-needed reform is, I venture to think, to consider whether any improvements are possible in the system of awarding medals adopted by the parent Society. Clearly it is a case with the aforesaid of *noblesse oblige*; and, besides, the value of example is considerable. As an individual who belongs neither to the above nor to the Charing Cross Road Club, I may perhaps be credited with approaching this somewhat delicate phase of the subject without possessing any undue bias; if I have any predilection at all it is in favour of renovating, rather than wrecking, an institution that can point to such a useful and distinguished past as can the Photographic Society of Great Britain. Although, as above explained, I am, to some extent, "out on the terrace," yet, as the working president of an unusually active provincial society, and also in other capacities which need not be particularised, a considerable volume of genuine and uncoloured opinion has come to my ears regarding the Pall Mall medals, which for reasons that are both good and politic do not see light in the press; none the less these *voces populi*, because they are free as air, are, when found to be in substantial accord, deserving of more than passing attention. Without of necessity endorsing the opinions I have found to prevail, I give them below for what they are considered worth. They come under three main heads:—

1. Too many medals.
2. Medals given for poor work.
3. Favouritism.

Respecting the first point, there certainly seems an absolute consensus, to which I also subscribe, that the judges have wofully "cheapened Paradise." As to grumble the second, less unanimity prevails. Of course as long as there exists a critical faculty, and it does not seem to be dying out just yet, so long will there be found criticasters to impugn the decisions of those who have to give the palm.

Still, it would almost seem that an improvement on the present methods of judging is not impossible, of which, perhaps, more on a future occasion. Coming to that ill-flavoured suggestion of favouritism, personally I think there is but small foundation for any such accusation. It is, of course, inevitable that a given man will have greater sympathy for, keener appreciation of, some particular form of photographic expression than for another form which may perchance be at least equal, and, in some folks, estimation, vastly superior.

But to see pink where another sees blue is not to be guilty of conscious partiality; and if a man prefer portraits seemingly taken in twilight, should we wax wroth at his admiring landscapes which represent smiling nature as being in a perpetual condition of dismal dumps?

Of course, over and above individual predilections and aversions, there are such disturbing things as friendships, clubs, commercial considerations, and coteries as "rings," which, having as a rule their headquarters in London, are certainly not favourably thought of by provincials, nor by others who are without the pale.

Allowing, for the sake of argument, that such closed circles use their influences unworthily, it is to be remembered that the Photographic Society of Great Britain is in no wise responsible for their existence.

Of course ardent reformers always shout for a complete upheaval rather than a revision, but to me and most others it would appear that, without on the one hand taking too seriously these mutterings, which, though at present not particularly loud, are decidedly deep, the executive might well, by the timely introduction of a few remedial regulations, greatly reduce the causes of dissatisfaction. Upon this point it will be my pleasure to submit some remarks in a future article, which, being prompted by a spirit of friendly advice, may possibly not be unhelpful to the powers that be.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, MARCH 3, 1893.

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The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. III.—More about Criticism.

In my last article on this subject * I finished rather abruptly, being pulled up short, not only by the exigencies of space, but also by the knowledge that some readers find an article intolerably long unbearably dull. I will now take up the subject where I left it.

Every picture should be judged, not only as a work of art of itself, but as an example of its particular branch of art. In the work before him the critic should consider whether proper use has been made of the special materials in which the artist labours, and if proper advantage of their peculiarities has been taken. Every generous limit should be given to the artist, but the direct and intentional imitation of one art in the materials of another should not be encouraged. The breed should be kept as pure as circumstances will allow; yet if in seeking true artistic expression the result of one art should have a family likeness to another, some allowance must be made, for all arts are the descendants of one mother—Nature.

In different arts we must have different ways of estimating skill, as I will endeavour to show.

We do not always so much admire the beauty of a production as the skill of the producer, and sometimes rightly. An exact imitation of nature has more artistic value in a *painting* than in a *photograph*. We can applaud the skill in drawing and colouring, and the exactness of observation of details in the painter, but we can give very little of this encouragement to the photographer. Exactness of observation is of use to him, but not the same use as to the painter. In our art the equivalent for drawing is a very slight accomplishment. It is represented chiefly by skill in exposure and development, and is so easily acquired as to no longer attract attention. But observation, drawing, and light and shade do not represent the whole of art, they are only means of expression. Although some hold that expression alone is art, I cannot help feeling that something more is required. Anyway we have these qualities in common with painting, but in different degrees; and photographers must remember that as they lose in their art a part of what is admired in painting, there is all the more necessity why they should prosecute the other essentials of art more closely. Therefore, as drawing and finish are to a great extent done for them, and they cannot have colour, photographs should perhaps possess more of those qualities that do not depend on expression as given by their process, such as intention, invention, felicity of subject, composition—in short, the charm of the thought as well as the magic of its utterance, and for these qualities critics should look.

Out of deference to modern ideas I will not insist that the critic should lay much stress on whether the useful and well understood rules of art are observed. As with the builder and his house, so with the artist and his picture; if he neglects the foundations, he does it at his peril.

Lavish or fulsome praise or serious blame is mischievous if not thoroughly explained and due reasons supplied, but the highest praise may be given sparingly, and no condemnation can be too strong occasionally. Both should be kept, like black and white in a picture, *precious*, or they will become as worthless as latter-day medals.

It is too ponderous an occupation, as well as cruel, to break a butterfly on the wheel. If the critic has a giant's strength, he should use it like a giant—of the wise and amiable sort, I mean. That is, be usually mild even if he has occasionally to use full strength. He should allow a little for our infirmities, and remember that our newest child is always thought most of, and that it is human nature to constantly mistake our farthing candles for the sun. On the other hand, a great deal of harm is done by what may be fairly called ignorant, or even dishonest, praise.

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* February 3, 1893.

There is one class of photographer that the critic may be excused for treating almost anyway. It is composed of those who, year after year, keep up to one dead level of excellence in one style. These men have only one fault, the fault of not being great enough to commit any, and it is difficult to find fresh words in their praise as exhibition follows exhibition.

We will now turn to another part of our subject. A victim often says of his critic, "Could he do better work himself?" Art critics have been called "artists who have failed in art," and Walter Savage Landor offered to stand a drink to his censor if he would write as good an "Imaginary Conversation" as the one he condemned. This offer was based on a common fallacy. The elder Disraeli well observed that "the talent of judging may exist separately from the power of execution." On the other hand, the skill required for writing disagreeable remarks is very common, and that of judicious eulogy exceedingly rare. Omniscience is the weakness of modern critics. They know all things, and will not allow the artist any acquaintance with the simple elements of his art.

The cocksureness of some critics has always been a puzzle and a wonder to me. They have the greatest self-reliance, and cheerfully say, "This is right, or that is wrong," with inconceivable certainty. They may really know little of the subject, yet the judgment is just the same. They think nothing of calling Turner a duffer and Raphael a prig. I don't think I possess the true modern critical faculty myself. If I admire a great artist, I am reverent of his work and willing to trust him. If he shows us something in a picture altogether wrong as understood by the ordinary faculties, I doubt the faculties. He could not have perpetrated the apparent incoherence without a meaning, and the meaning is that of a student of nature and master of his art, who has probably charmed, delighted, and astonished the world during a long lifetime. I remember what he has done, and take what appear to be eccentricities on trust. But it is different when a young artist *begins* with eccentricities; to doubt the rightfulness of want of experience is permissible.

When a critic makes a definite statement regarding a fact he should be quite sure that he is right, or he may seriously mislead his readers. When, for instance, he says, "A charming picture, but the lighting is all wrong," he should go further and show where and how, or he is guilty of flippancy. On the other hand, he should not take anything on trust, or give way to first impressions.

Now a word to the victims.

Honest criticism is intended for your good, dishonest should spur you to better work and shame your enemies. Take my word for it, these latter you will never have until you are worthy of them, it is proverbial that there is not much in a man who has none; remember that the old book says, "Woe unto you when all men shall speak well of you." Never be depressed by hostile criticism; to quote an American humóurist, "There ain't no sense in gitting riled."

If you should ever feel inclined to sink under the horrors of a "scorcher," think of the sensible words of Dr. Johnson: "Fancy a man who has produced a work which he hopes may live troubling himself about a criticism which he knows will die," and remember that even after that tremendous malediction on the Jackdaw of Rheims, "nobody seemed one penny the worse."

When Colonel Goliah Quagg asked the man of peace whether he would take his beating fighting or lying down, "I'll take it fighting" the man of peace replied, and it was the Colonel who got the drubbing. That is the spirit in which cruel, adverse criticism is best taken. Of course by fighting I mean by doing better work. Far be it from me to recommend fighting in any other way.

There is some praise that hurts worse than censure. As we all know there are certain writers who "take a line," and blame or praise according to their supposed interest. This in its extreme aspect is confined to a very small section of the press. When they condemn your course is easy:

"The noblest answer unto such
Is kindly silence when they bawl.

But when, by some singular mistake or, perhaps, as some portion of a deep-laid scheme, they praise you, remember Tennyson's lines to Christopher North:

"When I learnt from whom it came
I forgave you all the blame,
Musty Christopher;
I could not forgive the praise,
Fusty Christopher."

I should not like to conclude the subject with a bad taste in my mouth. Criticism is the medicine of art, and may act as a poison or have beneficial results; the effect is usually the latter. For my part I have been cheered by praise and stimulated to exertion by the reverse. I cannot help saying that since the death of Wharton Simpson photographic criticism, with some exceptions, has not been so good and helpful as it might have been; but I think I see evidence that the journals are waking up to the consciousness that better criticism is demanded. The time of the "irresponsible, indolent reviewer" is passing away. We still have one or two of the older school of writers who know a picture when they see it, and can describe it, and it is a pleasure to see that younger writers are arising well able to supply the demand. At the present time nothing could be of so much use to pictorial photography as honest, intelligent, and discriminating criticism.

Critics are said to be the most sensitive to criticism of all mankind, and I am aware of the danger of giving offence. If in this feeble attempt to induce them to improve their work I have too closely copied the words of any of them by way of example of what to avoid, or in any other way trod on tender corns, I am sorry.

I cannot do better than conclude by reminding the critic of the wise words of Thackeray, who, in speaking of "Mr. Punch's business" in the early days, said, "May he laugh honestly, hit no foul blow, and tell the truth when at his very broadest grin—never forgetting that if Fun is good, Truth is still better, and Love best of all."

SPORT WITHOUT A GUN.

BY ERNEST INGERSOLL.

Is it not possible to have enjoyment and excitement in outdoor adventures without the use of the gun or deadly traps—sport without cruelty?

Let us not be unreasonable. Fierce animals which threaten our lives, happiness or property—tigers, panthers, poisonous reptiles, or other creatures which interfere with farming and gardening, as gophers and the like—must be killed. It is necessary, too, in order thoroughly to study the animal kingdom, that we should be able to examine the anatomy of all animals; so that our argument is against the indiscriminate and useless making of "collections" by persons who are mere amateurs—or worse, when the country abounds in well-organised museums—rather than against any shooting for genuinely scientific purposes. No one objects, moreover, to the killing of animals such as deer and squirrels and the fur-bearers, whose flesh is needed or useful as food, or whose skins are valuable, if it is not done cruelly or wastefully. In all these cases the object is utility; the sport is altogether subordinate. Finally, it is not to be denied that the healthful exercise and mental enjoyment of sport is worthy of consideration; but the point to be emphasised is this: that when the ordinary methods of the sportsman are followed these advantages are purchased at too great cost for a humane man and true gentleman to pay.

The idea that no opportunities for enjoyment await the rambler through woods and fields except in the use of a gun is, happily, passing away. To maintain it is to admit that one's eyes and ears are unable to appreciate the pictures and music with which woodland and wayside are filled, or that one's mind is not to be affected by the wonderful things which nature is constantly disclosing to the attentive observer, or else that one's soul can be satisfied only by the brutal delight of killing something.

I was once standing at a railway station in Canada, when the winter was just relaxing its icy grasp. Masses of snow were still banked in the fence corners, but here and there the grass was to be seen, the sun was shining, and every one stood out of doors basking in its warm beams, and apparently reflecting joyfully that soon the long siege of cold would soon be over, and leaves and flowers would enrich the landscape with colour and fragrance. Yet what a shallow and ineffective veneer upon the character this gentler mood proved to be! At that moment a bird came flying over the desolate fields, carolling its sweet greeting, and perched upon the telegraph wire. "Oh, there's a bluebird!" exclaimed a half-grown youth to his companion; "let's kill it!" He stooped for a stone, and when I shouted, "Drop that!" all the people stared in amazement.

What sort of a disposition must those boys have had, who were eager to kill the first bluebird of spring in a winter-beset region? And what shall be said of the grown and presumably sensible people who saw no reason or were too weak-kneed to protest?

The blunting of the sensibilities in a person who either does or acquiesces in an inhuman act is a sure consequence and is one of the worst consequences of the action. In the higher and farther-reaching sense cruelty injures him who inflicts it more than the creature on which it is inflicted. One bluebird more or less in Canada may be of small moment; but no community can afford to nourish or tolerate such a sentiment as the stoning of that little harbinger of spring implied.

One of the most satisfactory directions in which amateur photography has turned has been toward the "taking" of living animals in their native haunts. Here is a substitute for the gun. It has all the excitement of the chase, except the sight of the death-pang, and it brings back a durable memento of achievement—a trophy worth having. Like the hunter, the photographer of living animals must know their habits, find their haunts, outwit their vigilance, and lull their suspicions. Modern, long-range firearms, with improved powder, make it a comparatively easy matter to get within shooting distance of almost any animal; but the sportsman who seeks to take the picture instead of the life of a wild creature must stalk it far more carefully, get much nearer to it, and obtain a clearer view of it. Those who have tried it affirm that the uncertainty, cleverness, and excitement belonging to successful photography of this kind are far more than are required in shooting the same game, and *far more fun.* The trophies, too, are much more interesting. A stuffed hide, no matter how well done, requires a tremendous strain of the imagination that is asked to make it real; and a skin stretched as a rug upon the floor, or a pair of antlers hung against the wall, are useless to bring back the scene of the chase to any one except, perhaps, the hunter himself. But the photograph of a stag browsing in his native glen, of a woodcock crouched upon her nest, or a heron intently fishing in some reedy pool, unsuspicious that a camera has been focussed upon it, forms vivid memorandum whereby other eyes than those of he artist can realise the scene and share the pleasure.

What can be more sportive or sportsmanlike, or more xciting and enjoyable, than the search of a botanist for ome rare plant, with the constant surprises that greet is observant eye, and the eager watch and hope for thers? The naturalist needs no gun for his enjoyment, nd only to a small extent for his work. As he ranges he woods with opera-glass, note-book, and collecting-oxes, his hours are full of amusement, his faculties are lert, and his mind is as pleasantly occupied as if he ust kill everything he sees in order to satisfy the vagery left in him from the childhood of the race, or he more artificial and meaner feeling of rivalry with ome other sportsman who has made a big bag. "There as a time," says the author of a recent and delightful ook of English rambles ("within an hour of London Town"), "before I knew better, when I thought the gun as necessary to make a man acquainted with wild reatures; but the destructive spirit has left me now; oth gun and fishing-rod have been laid aside."

These are only hints or suggestions of the enjoyment eserved for him who leaves his gun at home; and he will ind that instead of losing he has gained, for if really he e the true "sportsman" he vaunts himself, he cannot ut feel a twinge of shame whenever some innocent reature yields its life in agony, that he may experience momentary thrill of savage triumph. To-day he argues r crushes down these troublesome thoughts of self-eproach and sympathy; but having laid aside his gun, e will by and by come to perceive that it is better to let is nobler instincts prevail, and will conclude that the ruest sportsman is he that is true to himself.—*Our Animal Friends.*

PHOTOGRAPHY IN RUSSIA.

BY C. T. CHESTERMAN (ST. PETERSBURG).

A SHORT time ago the Imperial State-paper manufactory, or *expédition*, as it is called on the Continent, threw open for public inspection its stand of exhibits intended for the World's Columbian Fair. The most prominent among them, from a photographic point of view, were results of experiments with orthochromatic plates. irst of all there was a series of impressions in coloured rinting inks, either pure, or mixed in various proportions ccording to scale slips shown at the side of each colour. hese scale slips were printed in pure colours and then asted alongside each other in pieces corresponding to the mount of each separate colour entering into the result-g shade or tint; the whole was then photographed upon ollodion emulsion suitably prepared for each pre-ominant colour, and exposed through red, green, blue nd yellow screens. Prints from each resulting negative, s well as from one taken in the ordinary way by white ght, accompanied each set of colours; in some instances ed appeared as white.

The next noticeable feature was a chromo-lithograph, riginally printed in fourteen tints, reproduced in collotype by three colours, yellow, red, and blue, which rendering was so faithful that it could hardly have been distinguished from the original, placed beside it, if it had not been reversed—*i.e.*, evidently non-reversed negatives had been used in the production of the printing plates. In addition to the above several specimens of helio-engravings of water-colour drawings, printed in colours in facsimile of the originals, were exhibited, and some chromo-litho-collotypes showed what excellent effects could be obtained by roughly prepared tints being first printed from stone, and the picture itself printed from a collotype plate over these.

The above methods are not new, but they have been worked out independently in this establishment. The helio-engraving and collotype processes were worked out by Mr. G. Seamoni, and the three-colour method by Mr. W. Weissenberger, whose name is not wholly unknown in photographic circles. The latter gentleman has made orthochromatic collodion emulsion a special study, and has been for some time on the staff of the State-paper manufactory in the analytical and experimental department.

A French paper announced that the manufactory had bought the rights of Vogel's three-colour printing patent for 40,000 francs. This, however, is a *canard*, as the establishment never buys photo-mechanical processes of any kind. The principle of this process is not at all complicated, but the manipulations are very tedious. It is well known that the colours of the spectrum have each a different plane of focus, and when we consider that for colour-printing each plate must coincide to a nicety, the difficulties are obvious. Perhaps the use of a non-achromatic lens would overcome some of these difficulties, considering that in each case a mono-chromatic ray of light is being dealt with. Perhaps someone versed in optics may be able to give some definite data on this subject.

This particular mode of colour-printing has a great future for the reproduction of subjects from still life, especially in conjunction with the half-tone zinc process. By photographing each primary colour through a lined screen, placed at *different inclinations* for each colour, the resulting picture would produce the shades of colour more transparently than if they were printed one over the other; the effect to the eye, however, would be the same, owing to the juxtaposition of the dots or lines.

Mr. Fred. Ives obtains with coloured glasses that which is impossible with pigments, but the above ought to be the nearest approach to it.

In the Russian correspondence, published in No. 1,318 of the News, mention was made of the possibility of using a transfer made from a collotype plate upon grained paper. A very superior paper for that purpose is now manufactured by Herr Carl Schaeuffelen in Heilbron, Wurtemberg, for the use of artists and draughtsmen. It is known as pyramid grain paper, and there are three degrees of texture made:—No. 1 has as many as 2,500 regularly shaped pyramids, with flat apexes, to each square centimètre; grain No. 2 has 1,500, and No. 3, 750 cones or pyramids. A print in fatty ink upon this paper can be transferred to zinc or stone as required.

PHOTOGRAVURE DEMONSTRATION.

THE second and concluding portion of Mr. Denison's lecture and demonstration was given last Friday evening to an appreciative audience, amongst whom we noticed no less than seven members of Council of the Photographic Society of Great Britain.

Copper plates for the purpose of engraving are, it was explained, commercially procurable, but it is desirable to mention when purchasing that they are intended for the work of photogravure. It is also well to buy them with the edge ready bevelled, so as to avoid the danger of injury to the etched plate arising from doing this work afterwards. The plate is cleaned by rubbing with a tuft of cotton wool moistened with a solution of potash not strong enough to cause tarnishing. It is next washed with dilute nitric acid, and finally polished with cotton wool and washed whiting moistened with water containing 5 per cent. of ammonia. After rinsing and drying it is placed in the dusting box.

This dusting box is, for plates up to 10 by 8 inches, a case 12 inches square, and 18 inches in height. The upper part is completely closed in, but there is a door in the lower part of the front, reaching to about 4 inches from the bottom, through which the plate is introduced. The box is pivotted at the centre of each side, and hangs in a frame, so that it may be revolved. About half a pound of finely powdered bitumen is placed in the box, and it is spun round so as to cause the dust to be well diffused. After waiting (for an average grained plate) half a minute to one minute, the box is struck to shake down any coarse powder loosely adherent to the sides, and then the door is opened, and the plate rested on nails driven through from the bottom, or on some other support that will keep it horizontal and about an inch or so clear from the bottom. The plate is left for from three to ten minutes, when it will be found to be covered with a very fine grain of bitumen dust. The more delicate the subject the finer the grain required; for very fine grain the box may be at rest for two minutes before inserting the plate. Sometimes a sort of pattern may be seen in the dusting. This evil may be entirely prevented by keeping the box and contents perfectly dry, and by using a larger plate as a support for the one to be dusted.

The plate covered with bitumen dust is now placed on a hot plate, hot enough to cause a drop of water to hiss. The ground of dust will melt and become transparent and then acquire a peculiar bloom, when the plate may be removed and cooled spontaneously. It is examined to see that the spots have not run together, which would imply over-heating. The carbon print, made from a transparency as described in the first lecture, is developed on the plate in the usual way, and it is dried by flooding with a mixture of equal parts of spirit and water, and finally with all spirit. The margin is now protected with a coat of black varnish, as is the back, and the plate is ready for etching.

Five solutions of perchloride of iron are prepared of the following strength by Beaume's hydrometer :—No. 1, 45°; No. 2, 40°; No. 3, 38°; No. 4, 35°; and No. 5, 27°; and these are arranged in dishes side by side, small quantities sufficing. The ordinary course is to place the plate first in No. 1, and when this has acted—indicated by darkening of the copper—on the deepest shadows, and the action seems to stop there, it is placed in No. 2, and so on till No. 5. Sometimes the stay in No. 1 may be unduly long before any action appears, in which case the plate is removed for a short time to dish No. 2, or even dish No. 3, till action is started. An average time may be given—as for No. 1 one minute after action has started, two minutes in No. 2, three minutes in No. 3, two minutes in No. 4, and for No. 5 it is left in until half a minute after apparent action has ceased. All the solutions are kept at a temperature of about 70°. The amount of contrast can be increased by longer stay in the earlier solutions, and this is useful with a thin resist.

The plate is now washed in hot water, and gently rubbed to remove the gelatine of the resist, and the varnish of the edges is cleaned off with benzole, and it is finally lightly polished, when it is ready for steel-facing, or for the press direct, if only about twenty-five copies are required.

Prints were then pulled from a plate, and the Chairman, in thanking Mr. Denison, said that they had been fortunate in securing so admirable a lecturer, one who had made each step of the subject so clear.

CORRESPONDENCE.

MR. ROBINSON.

Sir,—If Mr. Robinson had stated that he withdrew his letter because the imputations contained therein could not be sustained, I should have been satisfied; but to purport to withdraw it out of consideration for my feelings, leaves it to be supposed that those imputations may be justly applied, and therefore, I request you to publish the reply which I sent you on the 21st ult. for publication.

W. E. Debenham.

Sir,—As previous correspondence had led me to expect, Mr. H. P. Robinson, in his letter of the 17th, avoids argument and substitutes personal abuse.

Except that in one of my letters the word judging was used in mistake for hanging (a mistake corrected in my next, and not occurring in my previous letters, when the hanging was mentioned), I believe there is nothing in what I have written that is not strictly accurate, and that, therefore, not only has Mr. Robinson not refuted my statements, but cannot possibly do so. This being the case, it is not difficult to see why insult and invective are used instead of discussion and argument.

W. E. Debenham.

46, Haverstock Hill, N.W., February 21st, 1893.

[Editorial Note.—We did not publish the above letter last week for the following reason: we had already expressed to Mr. Debenham, by letter, our regret that anything had appeared in this journal to wound his feelings, and when Mr. Robinson wrote to the same effect, and withdrew what he had written, we regarded the incident as closed, and held back Mr. Debenham's letter. This we now publish at his request.]

EXHIBITION OF PHOTOGRAPHS IN JAPAN.

SIR,—You were good enough to make an announcement in your valuable journal of the collection of photographs we had the pleasure a short time ago of bringing together from English and foreign photographers for an exhibition in Japan.

It may now be of interest to state that we have just received information from Professor W. K. Burton, which tells us that the exhibition will shortly be opened, and will be held both in Tokyo (the capital) and in Yokohama (the principal open port); that the enterprise is taken up with much enthusiasm (shown by a general desire to have the honour of guaranteeing the expenses of the undertaking); that the original idea of appointing three leading Japanese artists to adjudicate may have to be extended to selecting ten, as there are so many "schools" of art in Japan that it is proposed to give the designing of a bronze medal for the occasion as a competitive exercise to advanced students of the Government Art College, and that the exhibits (which were all sent out unframed) will be framed in a quiet way, and the exhibition made attractive in every possible manner.

We may add that a very fine collection of about three hundred English and foreign photographs, probably never before surpassed, was kindly contributed in answer to our requests by the following exhibitors: — Messrs. Horsley Hinton, Lyd. Sawyer, E. Beck, R. H. Lord, Alfieri, Hollyer, Keene, Scott, H. M. Hastings, H. Baker, H. P. and R. W. Robinson, F. Evans, Sutcliffe, H. W. and L. C. Bennett, Mansfield, Harding, Douglas, Cole, Burchett, Davison, Crooke, Halford, Gregor, Wilkinson, jun., Clement Williams, Keighley, H. Stevens, Bright, Ennis, Lange, Bhedwar, Briant, Guardia, Wellington, Tyser, Smith, Van der Weyde, Calland, Lee, Bergheim, Ulrich, Dumont, Bedford (the late W.), Bridson, Terras, Cassels, Dresser, Alexandre, Colls, Strakosch, Cobb, Gale, Ramsay, Rigaux, Colard, Loppé, Cameron (including some of Messrs. Cameron's pictures), Lyonel Clark, Andræ, Watzek, Blechinger, Gèruzet, Count Primoli, Baron Nathaniel Rothschild, and Mrs. Main. In many cases the contributions consisted of the best work of the exhibitor, so that it will be seen that everything has been done to make a representative exhibition, and one likely to interest our Japanese co-workers in photography. We shall hope to be granted the favour of the insertion of a note or report of the exhibition in your columns when further information is forwarded to us.

G. DAVISON.
A. PRINGLE.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

3,312. HENRY HARRIS LAKE, 45, Southampton Buildings, Chancery Lane, London, "An Improved Support for Photographic Apparatus." (A. R. Dubroni, France.)—*14th February*, 1893.

3,529. JOHN WILLIAM RHODES, St. Chad's Vicarage, Everton, Liverpool, "An Improved Toy Magazine Photographic Camera."—*17th February*, 1893.

3,604. GEORGE CHARLES WILLIAM BARRON, 18, Fulham Place, Paddington, London, "Improvements in Nippers for Toning Photographs and Removing Prints from Baths and the like."—*18th February*, 1893.

Specification Published.

5,742. *23rd March*, 1892.—"Photographic Shutter." A. S. NEWMAN and J. GUARDIA, 71, Farringdon Road, London.

The frame of the shutter is preferably made of aluminium, and within a case at each end of this frame is mounted a roller, to which is attached one end of a suitable spring, the other end of the latter being fixed to the frame. The second roller has a pinion fixed to the axis thereof, this pinion being actuated by a rack, one end of which is connected to a pneumatic piston, and the movement of this rack, when the shutter is released, is controlled by said piston working in a cylinder. The "blind," having an aperture therein, is wound off one roller on to the other to "set" the shutter ready for exposure by movement of the said rack. On releasing the rack the "blind" is wound back again on to the first roller by the reaction of the aforesaid spring, the rack being at the same time returned by the pinion on the roller axis. The speed of its return is regulated by the movement of the pneumatic piston, this regulation being effected by varying the distance that the piston is caused to travel, or by varying the size of the aperture through which air is expelled or drawn in. A small space may be allowed at the end of the pneumatic cylinder to prevent vibration or jarring, and a dial, &c., may be arranged with said cylinder so as to indicate the speed at which it is desired the shutter should work.

5,672. *23rd March*, 1893.—"Camera Stand." W. J. BOUGHTON, King Street, Thetford, Norfolk.

The improved camera stand consists of two upright standards grooved for cords, with cross feet, connected by two cross bars, in between which is a spindle with cords connected to raise and lower a platform between the two standards, and a wheel on said spindle to raise and lower with a wedge arrangement.

Printed copies of the full specifications of above patents may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

THE gathering of this Society last week was in the nature of a social function, and took the form of a concert and lantern display at the Hall in Aldersgate Street. Miss DRAGE and Miss TEAPE (names well known in photographic circles conjoined to the masculine prefix) gave their services as last year at the pianoforte and with the voice. Miss Teape's beautiful voice, which has gained in volume and power since the last annual concert, was heard to advantage in Arditi's "Dream of Home"; and Miss Drage's rendering of Litolff's "Spinnilied" was much appreciated. Old favourites, such as Mr. T. A. BRIDGE and Messrs. COWEN, were in evidence and greeted with deserved applause. Of the lantern show it is enough to say that Messrs. MEDLAND, FRESHWATER, OAKDEN, and RAWLINGS were amongst the contributors to state that the display was of a very high character. Altogether the "ladies' night" proved very successful as a relaxation from the business and mental activity characteristic of the meetings of this Society.

BURNLEY PHOTOGRAPHIC SOCIETY.

ON Wednesday, the 22nd ult., at the meeting of this Society, Dr. RATCLIFFE read a very interesting paper upon 'Home Portraiture." Dr. BRUMWELL, J.P., presided, and the attendance of members was a fairly good one. The paper, which was illustrated by diagrams and platinotype prints, was brimful of information.

Birmingham Photographic Society.

On 20th inst., Mr. J. J. Button gave a very interesting lecture, illustrated by lantern slides, entitled "Travels in Egypt." Mr. Button showed and described to his audience more especially the old parts of the towns of Cairo and Alexandria; he also gave many interesting details of the life and customs of the people. The lecture was very much appreciated.

Programme for March, 1893.

Tuesday, March 7th, social evening.—Tuesday, March 14th, lantern night. A fine set of over 200 slides has been secured for this occasion from the Liverpool Amateur Photographic Association.—Tuesday, March 21st, hand-camera demonstration. Mr. Bynoe, representing Messrs. J. & J. Beck, will give a demonstration upon hand-camera work, illustrated by lantern slides, showing the capabilities of the Frena hand camera.—Tuesday, March 28th, social evening. Messrs. Taylor, Taylor, & Hobson, of Leicester, have kindly offered to put on view this evening a small exhibit of their improvements in lenses. As they have put up this case specially for the Birmingham Society, members should not lose the opportunity of seeing it.—All the above meetings, except where specified, will be held in the Society's Rooms, Colonnade Hotel, at 7.30 p.m.

Putney Photographic Society.

Ordinary Meeting held at the Society's Rooms, Charlwood Road, on Monday, February 20th.—Dr. W. J. Sheppard in the Chair.

Mr. J. B. Scott was elected a member of the Society.

Mr. J. B. B. Wellington, of the Eastman Company, gave a demonstration on "Development of Rollable Films." In a short preface, he gave a history of the improvements of these films, culminating in those manufactured by the company at the present time. The chief advantages claimed were extreme lightness, portability, and the convenience of being able to carry a hundred exposures—very great advantages when travelling. Having brought a roll of exposed films, Mr. Wellington showed how very plainly their new roll-holder marked the divisions between the exposures, thus getting rid of a difficulty which had been experienced with the earlier patterns. Proceeding with the demonstration, he first soaked the films in water, which certainly caused them to lie quite flat during development. At least a dozen films were treated simultaneously, being placed face downwards, and care taken to keep them constantly moving, by transferring those from the bottom to the top in the same way as prints in a toning bath. This treatment is essential to insure even development. The developer used was the pyro-soda recommended by the company. Mr. Wellington stated that in cases of under-exposure better results would be obtained by long development than by increasing the quantity of soda. After development, the negatives were rinsed and placed in an acid and alum clearing bath, washed thoroughly, and fixed. The final washing completed, the films were placed face downwards on an opal slab or glass plate, and squeegeed, to get rid of superfluous moisture; they were then pinned down at the corners and allowed to dry spontaneously. The best way to store them was under pressure between the leaves of an album or book. During the discussion, Mr. Wellington stated that various marks which undoubtedly occurred in their films some time ago would not now appear, as great improvements had been introduced in their manufacture.

On March 6th, at Charlwood Road, "Transparencies by the Carbon Process," by Mr. W. E. Debenham.

Hackney Photographic Society.

Tuesday, February 21st.—In the temporary absence of Dr. Roland Smith, Mr. J. O. Grant occupied the chair.

Messrs. Sodeau and Nunn showed reductions by flash-light, and printing-out lantern plate.

Mr. R. Beckett showed a lens made from two ninepenny Meniscus spectacle lenses, and a portrait taken with it at full aperture, *f* 8.

The Hon. Sec. asked why it was recommended to keep gold solution in the dark?

Mr. Sodeau said light was likely to reduce the gold to a metallic form. He said, in answer to other questions, keep chemicals in a moderately cool place—not too cool, for fear of crystallising. Every time a bottle of ammonia was opened some power was lost; hence it was better to use a small bottle, or keep stock-bottle full up to the neck. The strength may be determined by standard solution of oxalic acid.

Mr. Barker asked can ferrous sulphate be recovered from developer oxydised by light?

Mr. Sodeau said yes, if organic acidifying matter be present; also recover by use of iron filings or nails.

Mr. Avent asked how to harden gelatine films.

Mr. Sodeau said chrome alum hardens more than ordinary alum; methylated spirit or aluminium chloride would also do. In answer to Mr. Poulson, it was advised to use boiled water for making solutions.

Mr. Gosling asked about the keeping of sulphite of soda.

Mr. Sodeau said it went to powder.

Mr. Beckett said sulphate was inert in developers.

Mr. T. H. Smith asked which was the best kind of gloss to use, and was advised black for silver compounds.

The lantern was then brought into use, and a number of slides were shown, after which some lantern lenses were tested.

Richmond Camera Club.

At the weekly meeting held on February 21st (Mr. R. L. Kidd in the chair), Mr. S. G. B. Wollaston gave a demonstration on "Platinotype," and, in introducing the subject, claimed for the new cold bath paper the following advantages over the old hot bath process—viz., perfect control over development; paper can be sufficiently printed out to show all detail even in the highest lights; warm or cold tones obtained at will by strengthening or reducing developer; retardation of development of any portion of print by the application of glycerine; paper keeps three or four times as long as hot bath paper, and will certainly keep good for nine months if properly stored in calcium tubes; prints, after printing, will keep a week before development, but it is not recommended to keep them more than about three days.

Mr. Wollaston then proceeded to develop some prints with various strengths of developer, and obtained some beautiful results with various gradations in warmth of tone; but it was thought by most of the members present that a still warmer tone was desirable. Some of the prints were developed by flotation and others with a brush, the latter showing the capabilities of the paper in the hands of anyone skilled in painting. It seems almost impossible to spoil a print with this new paper, as development may be made bit by bit, and yet no markings can be detected. Mr. Wollaston, owever, said there was one point to be guarded against in e local application of glycerine—viz., not to allow the lycerine to remain on too long, but to work it off rather uickly with a brush, otherwise two tones might be obtained n the one print.

BATH PHOTOGRAPHIC SOCIETY.

THE fourth annual general meeting was held at the Royal iterary and Scientific Institution, February 22nd, Mr. USTIN J. KING in the chair. After the minutes were conrmed, the President (Mr. Austin J. King) was, on the proosition of Mr. PUMPHREY, ably seconded by Canon VILLIAMS, re-elected by acclamation.

The HON. SECRETARY read the report and balance-sheet, hich dealt at length with the following points:—The esirability of a larger membership and partial revision of ubscription; a scheme for collecting for public use a series f photographs of what has or is taking place in the district; plan by which, in conjunction with the Technical School, he principles underlying the heart of photography may be mparted to students; the necessity of members taking an ctive part in the prospective work undertaken by the ociety; the success attending the Photographic Exhibition n May, in conjunction with the Floral Fête and Band Comittee. Attention is then directed to the efforts of lecturers uring the winter session to impart useful instruction with ational amusement. The excursions commenced in May vith a visit to Norton Hall, by invitation of Mr. W. B. Beauhamp, and continued each month during the summer recess o various places of interest, including Malmesbury, Castle Combe (where the Society was entertained by Dr. Sudlow), Vellow, Bradford, &c. Thanks to Photographic Press for pace given to the Society, and *Bladud* for similar courtesies. The Affiliation Scheme promoted by the Photographic Society of Great Britain. The evening filled by the Society in the Literary and Philosophical programme.

The Treasurer's account showed £6 5s. 11d. in hand after defraying the expenses of the year.

The CHAIRMAN said:—It is now my duty to move the adoption of the report which has just been read by the Hon. Sec. But I have a preliminary duty to perform. I have to thank you, as I do most sincerely, for again honouring me by choosing me as your President. I would feign have yielded this post to another, for I have many calls upon time which is too little available for them. But the Committee asked me to stand once more for election, and I felt it would be churlish to decline an honour so kindly tendered, and which, believe me, I fully appreciate. The report which has been read tells you what the Society has done, and in a manner delicately veiled it tells you what it has not yet done. The life of a Society, like the life of an individual, is dual. There is a private or domestic and a public career. A Society such as ours exists, in the first place, to aid and encourage us in our photographic studies and investigations, to make our business or our hobby pleasant and easy for us. Now there are three distinct openings, three distinct spheres of usefulness, which press themselves upon our notice. In the first place, a photographic guide to the neighbourhood of Bath has still to be compiled, and ours must be the task of compilation. In our immediate vicinity are many hundreds of subjects most suited to the camera. Visitors to our city have a right to expect information conveniently accessible as to these subjects, the way of getting to them, and the aspects of the different views. To a visitor the existence of such a guide means saving of time, and the great advancement of his photographic capabilities. To us the compilation of such a guide means but a little labour of love, which I am sure none of us grudge. Terms appropriate to the compilation have been issued, and I do venture to hope that during the coming summer these forms, fully and carefully filled up, will rain in upon our Hon. Sec. The second point I want to touch upon is the urgent need of a photographic survey of our district. There is not a passing year which has not seen changes, great changes. Buildings are pulled down. Churches are restored. Old monuments decay. We have the means easily and cheaply of recording in a permanent and accessible form the material, the physical history of our district. Where change is threatened, there should we be with our cameras. We should record what exists. Such surveys are being made throughout England by enterprising societies, and I am very sure we are not going to be left behind in so glorious a race. A sub-committee, under the able guidance of our veteran, Mr. Pumphrey, has had the matter under consideration, and their report will presently be submitted to you. Some few members have kindly promised to augment our subscriptions from half-a-guinea to a guinea until the membership increases. Let me recommend their example to any of you who are conveniently able to follow it. And now, ladies and gentlemen, having exhausted my time and your patience, I must perforce stop. We are members of a pleasant society, and we are going to make it a useful society; we are members of a poor society, and we are going to make it a flourishing society. Let but each one of us remember that our success must be the success of each, and must be the result of the work of each, and our object is attained, for I see around me many who are well able to effect still more difficult tasks. I move that the report and accounts be received and adopted.

This was seconded by Mr. G. F. POWELL and carried unanimously.

Messrs. P. Braham and A. F. Perren were elected vice-presidents; Messrs. E. J. Appleby, E. Lambert, Dr. Norman, Geo. F. Powell, Rev. E. A. Purvis, Canon Williams, and D. Williams, committee; W. Middleton Ashman, 12A, Old Bond Street, hon. sec. and treasurer.

Mr. W. PUMPHREY gave an outline of the work of the Survey Sub-Committee, and read the draft scheme accepted by the General Committee, which will be shortly published. He moved its adoption; this was seconded by Canon Williams, and carried unanimously.

The SECRETARY read a memorandum of agreement arrived at by the sub-committees appointed by the Bath Technical Committee and Bath Photographic Society.

Upon the motion of the CHAIRMAN, seconded by Mr. APPLEBY, it was unanimously adopted.

Colonel FOSBERRY, who was elected a member of the Society, described the mechanical details and the working of a new plate rocker he had invented, and gave an outline of his early experience of photographic pursuits in India, and promised to introduce a new form of light as soon as his experiments are completed.

Mr. PUMPHREY showed a series of North Devon views, lantern slides, after which the proceedings terminated.

NOTTINGHAM MECHANICS' INSTITUTION CAMERA CLUB.

THE usual meeting of the members of this Club was held in Room No. 75 at the Institution, under the presidency of Mr. Councillor J. A. H. GREEN. The minutes of the previous meeting were confirmed and signed. Two new members were elected. Mr. GREEN then presented the prizes won at the annual competition of the members to the winners as follows: — Landscape, Mr. Fewkes (Thornton Pickard

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shutter); Instantaneous, Mr. Hartley (Lancaster's Special Omnigraph hand camera); Artistic Combination, Miss Clarke (Griffith hand camera). After which, there was an exhibition of the *Photography* 1892 prize slides, the descriptions being read by the Hon. Sec., and Mr. A. W. Flowerdew working the lantern. The slides, which numbered 156, were a very excellent lot, the audience especially appreciating the floral, portrait, street scenes, athletic, and instantaneous studies; whilst the animal slides were the best examples it has been the lot of the audience to see.

On the motion of Mr. T. K. Gordon, a hearty vote of thanks was accorded to the Editor of *Photography* for the loan of the slides. Mr. R. G. Holbrook proposed a vote of thanks to Mr. A. W. Flowerdew for his services with, and the loan of, the lantern, which was enthusiastically carried.

South London Photographic Society.

Ordinary meeting, February 20th, at Hanover Hall, Peckham.

The President, Mr. F. W. Edwards, in the chair.

Additions to the Club Library were announced.

Mr. W. Rice (Vice-President) then read a paper on "Problems in Photographic Arithmetic." The lecturer dealt first with the covering power of lenses, and proceeded to show how to calculate the circle of illumination required for the different sized plates in common use when the lens was central and also when the front was raised. Angle of view was next dealt with. It was pointed out that photographic plates being made rectangular, a portion of the plate or part of the angle of view (covering power) must be sacrificed. When the latter course was adopted, Mr. Rice defined the angle of the photographic image on the plate as the picture angle which depended on the proportion of the field of view included in the picture. Tables for the simplification of the measurement of angles were given. Stops and the value of their focal ratio and exposure ratios were explained, and the lecture was concluded with a most simple method of calculating the measurements connected with the optical lantern without committing the usual formula to memory.

A considerable amount of discussion followed, led by Mr. P. Everitt, who endeavoured to show that the lecturer's method of calculating angles of view was not quite correct, but it appeared that he did not take the same starting-point as Mr. Rice, and it was ultimately decided to fix another evening to further consider the matter.

To further elucidate his remarks the lecturer distributed printed copies of his diagrams, with a number of questions illustrating the practical working of the problems.

By the courtesy of the manufacturers, samples of Cadett's "Lightning" plates and Schwartz's Diamidophenol (developer), in powder and cartridges, were distributed among the members present. Miller's "Unique" hand camera was exhibited by Mr. Ransom, and was very critically examined. Attendance 38.

Bristol and West of England Photographic Association.

February 24th.—Mr. E. Brightman in the Chair.

The collection of rare old waxed-paper negatives recently acquired by the Society was thoroughly examined by members for making fresh prints and lantern slides.

Mr. Gwyer kindly showed a new oil lantern he is patenting, which gave nearly three times the light of a good oil lantern tested against it. This result is obtained by a new system of concentrating three wicks, using common paraffin, and an ingenious shafting for draught. The lantern worked without any smell.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Omicron.—The stains are so like those which would be produced by ferricyanide that we tested them for that salt, but with negative results. We have never met with any of the kind before, and from your account they must be due either to some foreign matter in the blotting-book in which they seem to have been kept a long time, or to something in the drawer in which they were left in a damp condition. We are sorry that we cannot solve the problem for you at once; but we will try to do so.

H. W. R.—We must refer you to our advertisement pages; but we will offer one bit of advice, and it is this: if the beginner's means are limited, let him spend as much as he can on getting a camera and lens from a maker of repute. The other necessaries are of secondary importance.

P. T.—You have made a little mistake in your calculation. In obtaining an image in your camera of the same size as the picture you wish to copy, you must have the facility of extending your camera to double the focal length of the lens used. Thus with your 22-inch single lens the camera must extend to 44 inches. If you are tied to the use of this lens, you must rig up a temporary extending front to your camera.

Fairplay.—The account of the Torquay Exhibition was written by a gentleman on the spot who was commissioned to supply a report of the matter in the ordinary course. The paragraph in another journal to which you refer is, therefore, written under a misapprehension, or is intentionally incorrect.

Bz.—We should only be misleading you by giving any rule for the exposure of bromide paper to gaslight for contact printing, for different makes vary greatly as to the speed of the emulsion with which they are coated. Even two batches from the same works will often be different in this respect. You should ask the makers of the paper which you are using.

Q. E. D.—We should attribute the fault to pyro dust which has settled on the paper.

Puzzled.—We have, we think, solved your difficulty. We placed the two plates you sent to us in a normal developer, and found them free from fog with the exception of a kind of scolloped pattern near one edge due to refraction. This comes from allowing the plates to remain for a long time near the red lamp in the dark room—possibly while lying to set on the cold slab. We have ourselves obtained this effect when making very rapid plates.

Aurum.—A half-sovereign should yield about one and a half times its weight of gold chloride. Note that an Australian coin is better for your purpose than an English one, for the reason that the former is alloyed with silver (which can be afterwards filtered out as chloride), and the latter with copper, which is more difficult to eliminate.

Creusa.—All such rough methods of separating glass are extremely risky. For thick glass a common steel wheel cutter will often do the work better in unskilled hands than with the most expensive diamond.

Mem.—The copyright has yet several years to run—about twelve we fancy.

L. S. Z. writes:—"Will any brother reader give me particulars of a tour in Holland, Rotterdam to Amsterdam, going and returning by different routes; five clear days there, museums and picture galleries excluded?"

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THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1801. MARCH 10, 1893.

NOTES.

THE Crystal Palace Company have published rules and regulations concerning their National Challenge Cup Competition, which will take place in connection with the forthcoming photographic exhibition at Sydenham. The Challenge Cup Competition is confined to recognised photographic societies within the United Kingdom, and full particulars have been forwarded to each one of them.

WE learn that the *English Illustrated Magazine*, which has always been renowned for the excellence of its photo-process blocks and wood engravings, will for the future be published by Mr. Edward Arnold, of 37, Bedford Street, Strand.

THE *Journal* of the Photographic Society of India publishes, as a frontispiece to its last month's issue, a capital photogravure of our esteemed correspondent, Colonel Waterhouse, the Assistant Surveyor-General of India. Speaking of the Colonel's valuable photographic work during the past twenty-five years, the Editor remarks :—"Though carried out under many difficulties in a trying climate, and in the scanty leisure of a busy official life, Colonel Waterhouse's researches have been eminently clear in their teaching and practical in their bearing, and there are few who, having taken up the clues where he has laid them down, but have benefited largely from them."

AT the Blackheath Camera Club Exhibition, last week, Mr. George Davison was unfortunately prevented from acting as judge. The Rev. F. C. Palmer kindly stood in the gap, and worked in conjunction with two other competent men, Messrs. Cembrano and Pringle.

A MAMMOTH hotel is being erected for the accommodation of visitors to the World's Fair, Chicago. It is built in blocks—somewhat after the pattern of St. Thomas's Hospital, London—and is designed to comprise more than six thousand rooms, which will be let at a uniform rate of one dollar a day to those who secure the accommodation beforehand. The agency for this hotel in Britain is with the City Press Agency, 51, Coleman Street, London, E.C.

THE West Surrey Photographic Society send us No. 1., Vol. I., of *The Photographic Gazette*, the new organ of their flourishing Association. It is a neatly-arranged, large octavo publication, and contains many useful contributions. We wish our young contemporary success.

THE Duke of Argyll, in his "Unseen Foundations of Society," avails himself of an illustration of a photographic nature, in pointing out the fallacious argument of a certain British workman. Says the workman : "I never could see why any other man should make any profit out of my work and labour—why the whole of its value should not belong to myself." Says the Duke, in answer : "If no one could have a right to get a profit out of that man's labour, neither would anyone else ever think of employing him at all."

THE Duke goes on to say that the workman should ask himself the question : "What part do I play in this enterprise as a whole ?" and should consider every-day facts. His illustration is that of a photographic materials company, and he pithily asks what share has any manual worker had in the discoveries and inventions, the adaptation after adaptation of the most refined chemical analysis to mechanical combinations, which alone make such a business possible. The ordinary worker does not, as a rule, bother his head about these unseen elements in production, but they exist all the same.

Mr. A. Taylor, who will be in command of the Brazilian expedition to observe the forthcoming eclipse of the sun, contributes to the *Daily Graphic* an interesting illustrated account of the special points to be observed, and the instruments to be employed, in carrying out the work. One of the illustrations represents the coronagraph. This instrument consists of a double tube of wood six feet long, mounted on a telescope stand provided with a driving clock, so that the lenses may follow the sun. One of these lenses is of 4 inch diameter, with a focus of 61½ inches, which will give an image of the moon half an inch across. The other, we are told, has a special combination of lenses giving a diameter to the moon of an inch and a half. Of course, this latter arrangement is the Dallmeyer tele-photo lens.

In speaking of the enormous advantages gained by employing photography for eclipse observations, Mr. Taylor says :—"The photographs have yet another use. Standard density scales can be fixed on the side of each of the photographic plates, and, by their use, the absolute light-giving power of various parts of the corona can be measured." He also testifies to the value of the work to be achieved by the photographic plate in conjunction with the spectroscope.

The coming exhibition at the Crystal Palace is to have a big bench of judges, and a powerful one to boot, as will be seen from the following list which we have authority to publish :—Hon. Slingsby Bethell, Valentine Blanchard, J. Pattison Gibson, F. Mason Good, Dr. G. Lindsay Johnson, M.A., B.Sc., Richard Keene, W. Lang, jun., Edgar G. Lee, F. Stanley Little, Peter Macnab, L. H. Noel-Cox, Francis Powell, R.W.S., J. P. Slingsby Roberts, Leslie Thomson, and F. York.

An instantaneous photograph, reproduced in one of the American illustrated papers a short time ago, caused a sensation in Fifth Avenue society. While the Kyrle Bellew rage was on, young lady enthusiasts used to wait outside the stage door after the matinées, and besiege him with bouquets. One day an enterprising editor sent a man to photograph the scene, and the next week appeared the picture of the infatuated fair ones, among whom were the two daughters of a prominent New York banker. If some one could take a flash-like photograph of the "mobbing" of Paderewski by excited feminine admirers it would, we fancy, have a very salutary effect.

The fortunes of photography, as an industry, have always been greatly dependent upon fashion. This is no discovery, for much has been written and said on the subject. One point however, has, we fancy, been left unnoticed. We refer to the influence of the modern style of furnishing on the photographic album. The fashion of to-day has extinguished the drawing-room table, whether round or square, and with the drawing-room table has also disappeared the photographic album. In middle-class and upper-middle-class homes the two were once inseparable; but now that we have abolished the table and the track round it, and have thrown our chairs, couches, standard lamps, and fragile cabinets into space, there is little place for the album. Even the isolated photograph on the stand has been elbowed out by art pottery. Fortune has dealt photography some hard blows of late years.

When Columbus allowed his beard to grow or shaved it off according to the exigencies of circumstances—for one can well imagine that on his voyages he would not trouble to use the razor—he little thought he was laying up a store of doubt and worry to artists four centuries later. The contemporaneous portraits of Columbus have been well studied for the purposes of the new American stamps, but the point could not be decided whether he did or did not wear a beard when he landed in America. To be on the safe side, the artists have represented him both ways. On the one cent. stamp, showing Columbus in sight of land, he has a clean-shaved chin, while on the two cent. stamp, the "Landing of Columbus," he has a beard of at least three months' growth. As only a day or two intervened, beards must have grown very much quicker in the Tudor than they do in the Victorian days.

Some may say the point is not of much importance, but surely a public man owes a duty to the artist. Nowadays, thanks to photography, with its power of multiplying portraits, this duty is more pressing than ever. A public man must make up his mind how he will look, and stick to it. Mr. Gladstone is very constant in this respect, and so was the Earl of Beaconsfield. Mr. Parnell, on the other hand, changed his facial appearance a dozen times during his career, and Lord Randolph Churchill has irritated one's sense of the fitness of things by growing a beard. Sir William Harcourt, Mr. Chamberlain, and Mr. Arthur Balfour, up to the present, have remained unchanged, and if they are wise they will so remain.

TELE-PHOTOGRAPHY.*

BY THOMAS R. DALLMEYER, F.R.A.S., ETC.

THE object of "Tele-photography," as its name signifies, is the production of photographs of objects situated at such distances from the operator that they can be interpreted and examined in a manner that would be impossible to the naked eye. The term is parallel in its meaning with "Telescopy," and tele-photography has as its aim the recording on a photographic plate a combination of a number of distinct and separate telescopic impressions that can be obtained by sweeping a telescope over a greater field than that included in its own field of view, in the same manner, but to a less degree, that ordinary photographs record a number of distinct and separate visual images or impressions obtained by passing the eyes rapidly, and almost unconsciously, through the "wide" and "deep" fields of view, as they are termed.

When we view any object with the naked eye, we judge of its apparent magnitude by the angle which it, or any two points in it, appear to subtend at the eye, or point of sight. If we approach the object, the angle subtended becomes greater and the object becomes magnified, and *vice versâ*. The ordinary magnifying glass enables one to see an object under a greater angle than without its use; in the case of the microscope, we are enabled to get a much nearer approach with the lens to the object than would be possible, with distinct vision, to the eye itself. In viewing an object with a lens, the apparent magnitude, as seen through the lens, is to that with the naked eye as the distance of the object from the eye is to the focal length of the lens.

The foundation principle of the telescope rests again on the possibility of seeing objects under a greater angle than that possible with the naked eye. Knowing that the apparent magnitudes of objects vary inversely as their distance from the eye, it is evident that, if we form a real image of any object by a lens, and place the eye in the position of the optical centre of the lens, both object and image would subtend equal angles, and therefore be of the same apparent magnitude. Now, a nearer approach of the eye to the image enables one to see it under a greater angle, and it therefore becomes magnified. In the telescope, as you are aware, this real image, although formed in air, is magnified again by the eyepiece, the magnifying power of the telescope being the focal length of the object-glass divided by the focal length of the eye-piece. This holds good in all types of telescopes—astronomical, terrestrial, or Galilean. It is well to note here that an increase in the length of focus of the object-glass with a constant eye-piece, or the employment of an eye-piece of shorter focus with a definite length of focus for the object-glass, will alike bring about increased magnifying power.

In leading up to the subject before us, it will be best to first grasp the full significance of magnifying power in the use of telescopes. The power really means that you approach (according to the power employed) so many times nearer to the object, and this explains how it is that the "fixed stars" do not appear larger (although more brilliant) in the telescope, for the approach to a few hundred or even thousand times nearer is so insignificant an approach compared to their immeasurable distances from us, that we cannot appreciate any increase in the angle these bodies subtend, any more than we could appreciate the difference in the angle subtended by some familiar object, say a mile or two off, and the same object viewed from a point of sight only a yard or two nearer!

The usual practice in astronomical observations is to increase the power of a telescope by employing an object-glass of definite focus with sets of Huygenian eye-pieces, ranging from longer to shorter foci, used in conjunction with it, the limit of magnification being determined mainly by the sufficiency of amount of light transmitted to the eye to enable it to be seen. When, however, the telescope is employed for micrometrical measurements, another well-known form of eye-piece—the "Ramsden"—has to be employed, as it is necessary to have both the primary image given by the object-glass and the wires in the same plane. Now it is evident that any increase in a series of higher power (or shorter foci) Ramsden eye-pieces would not only increase the magnification of the telescopic primary image, but also increase the apparent thickness of the wires themselves. In February, 1834. George Dolland, F.R.S., made a communication to the Royal Society, in which he gives an account of a "Concave Achromatic Glass Lens, as adapted to wired micrometers when applied to a telescope, which has the property of increasing the magnifying power of the telescope without increasing the diameter of the micrometer wires." The achromatic concave lens was first made at the suggestion of the late Professor Barlow, "for the purpose of improving the chromatic aberrations which affected the field of the eye-glasses applied to the telescope. invented by that gentleman, with a fluid correcting lens." To George Dolland belongs the credit of applying Barlow's lens to the telescope to attain greater magnification at the primary focus by interposing such a negative lens between the object-glass and the eye-glass, and thus enabling a lower power eye-piece to be employed upon the micrometer wires, and yet attaining a greater magnification than the object-glass alone would give.

In this communication (1834) George Dolland says, "The interposition of a concave lens between the object-glass and eye-glass of a telescope has been generally known by opticians to produce an increase of the magnifying power, in proportion to its focal length and distance from the object-glass; also that a convex lens, if so applied, would diminish the power." This statement, although made sixty years ago, is not surprising, as the oldest works on optics contain the very simple formulæ (that I shall shortly trouble you with for a few moments) connecting lenses of various foci and their separation. In May of the same year Peter Barlow further dwelt on the advantages that might accrue from employing his negative lens in "day telescopes," and also for astronomical telescopes where the micrometer is not employed; "for by giving an adjustment to the lengthening lens the power may be changed in any proportion, even without removing the eye or losing sight of the object. I have no doubt these and other applications of the lengthening lens will be made."

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* Read before the Society of Arts, March 1st.

Barlow's rough directions fór making the negative achromatic lens were to make the plate or crown lens concave instead of convex, and the flint convex instead of concave.

Having examined the known methods of attaining magnification in the virtual images as seen through the eye-pieces of telescopes, we will now proceed to an examination of the production of real images that are necessary in photography, and the methods of enlarging those images before they are received upon the photographic plate.

Every positive lens or lens-system forms a real image of an object in the plane of its focus. The focal length of a lens is measured hy the distance between one of the principal planes passing through one of the nodal points of the lens towards the principal focal plane (where the image is received) and that plane. The size of the image of any distant object is dependent on this measure of the focal length; and in comparing two lenses, no matter of what form of construction, if the size of the image given by one is n times that of the other, you are aware that the focus of the one is n times that of the other. In order then to attain larger images of distant objects, photographers, until quite recently, have only had recourse to the employment of ordinary positive systems of greater length of focus that necessitated the use of unwieldy apparatus.

Another possible method of attaining an enlarged image has been the application of the telescope itself to the photographic camera, in the cases of the astronomical and terrestrial telescopes the eye-pieces acting as secondary magnifiers, and in the case of the Galilean telescope the negative lens acting as a powerful "Barlow." These applications have met with but little success, first on account of the very small angle included, and secondly on account of their extreme slowness. They have been applied chiefly and almost entirely to solar observations, either by projecting the image of the sun on to a screen in order to make it visible to a number at once, or photographing it by placing a sensitive plate in the place of the real image upon the screen.

In observatory work, special instruments have been designed from time to time by my late father and myself, known as "Photo-heliographs," in which the primary solar image is magnified by specially-constructed "secondary magnifiers" in order to attain as flat a field as possible in the photographic image, and a perfect coincidence of the visual and chemical foci. In the forthcoming eclipse expedition a new enlarging negative lens, photographically corrected, will be employed as a trial of the comparative advantages of the two systems. The system of adopting a secondary magnifier, in ordinary photography, has been tried: but little has been heard of it as the field is very small, the illumination of the image weak, and the image itself erect, which is usually a disadvantage.

In the autumn of 1891, I first directed my attention to the lens I termed "The Tele-photographic." The problem was to (1) construct a lens giving large direct (and inverted) primary images of sufficient rapidity, consistent, and covering power, and including an angle large enough to be of value in, and an advance upon, the methods already in use; and (2) to reduce the bulky and unwieldy apparatus formerly necessary.

In principle it is identical with Dolland's adaptation of Barlow's lens for increasing the focal length, and, accordingly, the magnitude of the image, without materially lengthening the length of telescope tubes.

(*To be continued.*)

THE WIDE ANGLE CLUB.—III.

THE members as they slowly filed in to the last meeting saw a very handsome mahogany box upon the table. It was the new question-box. The Vice-President, his face wreathed with smiles of considerable dimensions, took the chair at 8.15.

The Hon. Sec. reported the addition of seventeen new members, including the world-renowned journalist who is joining a good many clubs at present.

The Treasurer remarked that so long as he paid his subscription that fact made no difference.

The Chairman drew attention to the question-box, and taking from his pocket an envelope sealed in green and red wax, gravely took out the key, unlocked the box, and in a voice of considerable importance, but with smiles growing still larger, said, "I declare this box to be open; take away the bauble."

It was passed round for the inspection of members, and found to be well designed for practical use. The carved top, when lifted, revealed a cosy case lined with green plush, with a handsome gold bordering. Underneath this was a drawer, partitioned and plushed, for ink, pens, and sealing-wax on one side, and on the other sheets of foolscap. Blotting-paper was provided in a receptacle attached to the inside of the carved top. The unanimous opinion was that the Hon. Sec. had done the thing well.

The next business was the insertion of questions, nearly every member present putting in the box one or two (in one case seven) small pieces of paper. The box was duly locked by each member in turn, and after all the documents had been deposited, it was handed to the Chairman. He, smiling as if it was going to be the very best joke he ever heard, drew out the first question.

"Can I use a $\frac{1}{4}$-plate lens upon a $\frac{1}{2}$-plate camera, or will it strain the lens very much? How long will the lens stand the strain before breaking?"

Mr. Jingle remarked that he thought he had seen that question asked in one of the photographic papers, but he did not recollect the answer. He would, however, look it up and bring the paper in question to the next meeting.

"Angle of light. In photographing eight-sided or octagonal objects, do all the angles strike the lens at a similar ratio?"

The Chairman said as he was an authority upon the question of angles he would reply. He thought the question rather vague, but the ratios could not possibly be the same, as some of the sides would be round the corner, and therefore the angle would not intercept the focal ratio at all.

"Is it of any use trying to take the interior of a church with a hand camera, and is there any advantage in having two view finders to a hand camera which takes plates 4 × 3."

This brought Mr. Fordwell to his feet, who said he unfortunately did not go into many churches, but as he believed the hand camera could do anything and everything, he saw no reason why interiors should not be accomplished. He would not advise two finders for plates 4 × 3, but they were a necessity for plates $4\frac{1}{4}$ × $3\frac{1}{4}$.

"I see in this week's issue of a certain journal a statement that silver is very deliquescent and cannot be kept long."

Mr. Raven thought that some editors ought to know better than make such absurd statements. They did not know what they were writing about.

Mr. Younghusband said that he had found silver melted very quickly. He had put a lot in his trousers pockets the night before, and it had disappeared. The night was rather wet, and as he had had several calls to make perhaps that had something to do with it. At all events, as his wife was away for a holiday, that was the only explanation that remained.

The Chairman, with a beaming smile, said they could not possibly get through all the questions in the box that night, and suggested that the members who had not received answers should meanwhile study up the photographic papers. If the information could not be found there—and he did not think it would be, as he had nothing but contempt for some of the editors—they could be asked at another meeting. He drew one more piece of paper, saying, with a grin, that it must be the last.

"I am about to get married. Should I send notice to all the photographic papers so as to preserve my amateur status?"

Amidst shouts of laughter, the meeting broke up at this point. It was just a little too much.

* * *

Chicago Exhibition.—The American Library Association, which has the co-operation of nearly all the great libraries of the country, will make a notable exhibit at the World's Fair. It will include samples, models, and photographs, showing articles and mechanical devices in actual use; printed matter, forms, blanks, constitutions, bye-laws, rules for subscribers; accession departments and their management; catalogue, classification, and reference departments; binding department, with samples of binding, temporary covers and recipes for restoring, mending, and cleaning; shelf and building departments; and an architectural exhibit, showing plans, elevations, perspectives, and models of the best library buildings. There will also be a model library of 5,000 volumes, selected from lists prepared and sent in by the various librarians of the country.

FILLEBROOK ATHENÆUM PHOTOGRAPHIC SOCIETY.

THE second annual exhibition of this Society was held last week in the Fillebrook Lecture Hall, Leytonstone, with great success, for the entries were numerous and of good quality. It may be remembered that in our preliminary notice of this exhibition we stated that the usual division of pictures into classes was not to be made, with the exception of a special class for exhibits which had won honours at previous shows. The other rules were framed in a kindred spirit, and the promoters of the exhibition must be congratulated on their action in this matter. The judges, too, should have a word of praise for following a good example in withholding medals in cases where the exhibits did not come up to their ideal. Thus, out of six silver medals at their disposal, but five were awarded, and of eight bronze, only three were given away.

The exhibition room was prettily decorated, and was well suited to the purpose. Beyond the competition pictures there were many old favourites lent for exhibition, notably a number by H. P. Robinson, among which were his "Carolling," and the ever beautiful "Dawn and Sunset." His son, Mr. R. W. Robinson, also contributed a number of excellent works, and took the silver medal in the champion class for his excellent portrait study of Mr. G. F. Watts, R.A. In the general class another medal fell to the same exhibitor for "Making Friends." Mr. Jeffrey's "February Morning" was also thus honoured, as was also Mr. Leslie Selby's "Evening Calm." The remaining silver medal went to Mr. A. Keighley, for a singularly tender bit of frosty landscape, "The Breath of Winter." This gentleman exhibited a number of pictures, and they were all of excellent quality. The bronze medals were awarded to Mr. L. C. Bennett, for his "Cress Gatherers;" Mr. F. W. Edwards, for two fine interiors of Westminster Abbey and Canterbury Cathedral; while Mr. W. Howell was similarly honoured for a study of the south entrance of the last-named building.

There were many other excellent works by well-known men, but we cannot afford space to mention them in detail. Some studies of heads, by the late W. N. Malby were not catalogued, but they were well worthy of attention.

The lantern slides were decidedly beneath the average, and the judges—Messrs. Cembrano, Colls, and Hodges—did well to refuse to make any award. The slides were shown on a scale too large for the room, and with a lantern that certainly did not warrant such a distance from the screen, for the light it gave was by no means excessive. The pictures were not only badly lighted, but the bottom margin of each was cut by the heads of the spectators in the front row. These little flaws did almost as much to spoil the effect of the show as did the silly remarks and cat calls of the unmannerly boys who, by some error, had been allowed access to the room. The Committee will, no doubt, see that another time their exhibition shall not be prejudiced in this way. In every other respect they are to be congratulated on their most excellent management.

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PICTURES AND PICTURE-MAKING.

BY H. A. MUMMERY.

OF all the arts or sciences moving so rapidly forward in this nineteenth century of ours, none, I am sure, has made such wonderful progress as photography. From the times of the Daguerreotype, with all its wonderful and awful operations, down to the age of "You-press-the-button-and-we-do-the-rest," has, indeed, been a mighty advance. But although the chemical processes and manipulation — the scientific portion of photography—has made such wonderful progress, there is another factor in the change which, from the point of view of the artist, is of far greater interest.

I have read in old books terrible tales of how quite innocent people have been tortured by being kept without food or drink for long periods of time, standing against whitewashed walls in the glaring sunlight, with a camera levelled at their heads. This torture was called the Daguerreotype, a process which, however successful as a scientific experiment, failed as an art. There is something inartistic about that polished metal plate, such a greedy devouring of every trivial and unimportant detail: it wanted to do too much—to show everything. Now, indeed, one of the great things in art is knowing what to subdue, or even what to leave out.

Should I wish for a portrait of my friend, I do not want the pattern of the wall paper or of the carpet, the carving on the furniture, or any other unimportant details to take the same place of importance in the picture as my friend's face. In so many photographs, not only in the older ones, but even in many modern ones, there seems lacking the most important thing in a picture—viz., a motive. I mean by motive the reason of our taking a picture, the something which soon catches the eye and makes itself central to the rest of the picture; but I shall speak of this later on.

Now, since the days of the old photography, a marked change has taken place which, as I have said before, is of the greatest interest to the artist. The change I refer to is in the artistic quality of the work. The processes and manipulation being now simplified and settled, and no longer matter of experiment, there is free scope for the photographer to devote his energies to the artistic portion of his craft. Then again, when photography was emerging, it was carried on by many in a purely scientific spirit. But I think that to-day its many votaries follow it so earnestly because of the power it affords for the making of pictures. Now, I think, it is a very important fact that photography to-day is so intent on the making of pictures, not a mere representation of a place you have visited or of a place that has pleased you, but a picture—and that not by the selection of subject only, but by the deliberate and conscious direction of processes towards some particular end—this has lifted photography up to the rank of a fine art. The photographer has become or can become an artist, because he is now able, through his art, to express his ideas of things; he makes his camera do as it is told, and it soon shows whether the man behind it has good taste or not.

Now, art is not the mere copying of nature. Although this faculty is the stock-in-trade of the artist—the tool with which he works—we must indeed know how to represent rightly and faithfully the aspect of things; but although this needs a lifelong apprenticeship, it is yet but the beginning of art, which is the expression of ideas about things, always glorifying and reverencing them. As the good poet Grey says of the singer, "his thoughts are hymns of the praise of things," so, too, the artist is full of the praise of things, and selects, composes, and rejects, until he has managed to say, "This is my idea of nature; the result of all my experiences, pleasures, and pains, hopes, and disappointments. The sunshine that has streamed upon me, the voices that have spoken to me, have not been all in vain. See! I give them out again, plus myself."

Art is the child born of the contact of nature and the human soul. Now when you set your camera up and copied anything you came across, your work, however interesting, could not be regarded as art; but to-day you do so much more, you make pictures; and the mere fact that there can be so much difference between the pictures of the man of taste and those of the man of no taste, argues well for us in regarding photography as a fine art, and it is about this making of pictures that I am to say a few words to you this evening. I, of course, shall speak only from the point of view of the painter, and, having no knowledge of the many mysterious processes of your beautiful art, must be excused from applying the truths which I shall try to enunciate.

I think the first thing in making a picture is the choice of a subject: this is really of tremendous importance. In it is clearly shown the character and temperament of the individual, and its successful accomplishment depends much upon the spirit in which we go to nature. Now a young artist, in choosing a subject, naturally feels the limitations of his power; he tries to choose something that he thinks he can manage. But this is not the case with the young photographer; he feels no such qualms of conscience; his camera takes anything; therefore, he is apt to level it at the first thing he comes across, quite regardless of whether it will make a satisfactory picture or not. Now it is a very important thing to recognise the limitations of one's craft; not everything that nature spreads out before us, and charms us with when reproduced on paper, will please. One of the most striking features of nature is multiplicity—the countless blades of grass, and the leaves of the trees, or the many clouds in the sky; but yet if we come carefully to analyse our impressions there is a wonderful sense of unity. We find that masses of things impress us most. We are impressed by the grouping of the leaves, or of the blades of grass, and the *orderly arrangement* of the clouds in the sky, and true art always longs to recognise this massing, or direction, and to show the great laws which govern it. The most conscientious artist finds that he must leave out something or other, and woe betide him if he leaves out any of the important things. How much the photographer is able to manage this process of rejection I hardly know, but at any rate he should endeavour to choose subjects which are as broad as possible, and should avoid all broken effects, glitter, and flickering lights, and so on. Nothing, I think, is more pleasing in nature than spring-time, with all its thin leaves, flickering, pale sunshine, shadow, dappled grass under the trees—all touchy and spotty, so fresh and young.

But it is difficult stuff to make pictures of; you are so apt to overdo it. Look always for things that are broadly and simply massed in their lights and shadows; they make good pictures, and will always look telling when placed among work that has more elaborate arrangements.

I should think it was a very difficult thing in photography, when you are choosing a subject, to overlook colour. So many things are pleasing, and really composed by the arrangement of the colour, and when reduced to black and white will not pull together. I have seen really fine pictures, in which everything depends on the colour, and which were practically composed by the arrangement of the colours; but you, of course, have to look for things which are interesting in their forms and tones. I mean by tones the relative lightness or darkness of objects quite independent of their colour. These tones really give solidity in Nature. One object picks itself out from its surroundings by the difference of tone. A good picture in black and white wants plenty of this, as it lacks colour. Often enough photography overdoes this, and goes too much for violent contrasts; but we should notice how subtly Nature relieves one object against another, so little difference in tone, and yet no blurring in the faintest, tenderest distance. One object doesn't stick to another; you can disintegrate them. Well, look for subjects where there is enough contrast to be pleasing, but avoid very striking contrasts, as you are apt to exaggerate them. A gleam of sunshine across the country on a grey day is very bright indeed, but in the hands of the photographer it is apt to become too crude and glaring. Nature is always beautiful, but does not always deliver up her charm to the artist, especially when his art imposes limitations on him. The master painters even had to pick out carefully what they wanted, had to ask themselves of the extent of their own powers. When you see some effect which pleases you, analyse it carefully, and find out whether it is that particular thing that pleases, or whether it is through combination with some other things. Perhaps Nature has been speaking to you all day, and you are full of impressions that contrast with what you see, and that add something to the scene which is not really there. Nature takes it into her mind sometimes to make you very pleased with some comparatively unimportant thing which would be very difficult to make a picture of. This leads the poor artist off the track, and may cause some to even go as far as Fuseli and say, "Bother Nature, she always puts me out." It is so difficult, even when you know your craft, to know what to do. Whether or no you are going to make good pictures depends very largely on the way you look at things. Do you really see more than the man in the street? You can mix your chemicals up, juggle your plates about—but what have you got to say, what do you want your work to say? *Art is the saying of something*, and photography can say very much indeed, there is no doubt about that. There is a great deal in Nature that photography can interpret perfectly *when* the man behind the camera is an artist; but when he isn't—well, no matter.

I am afraid I am wandering around wofully, but, unfortunately, the things I want to say are not to be said—we should be poor creatures, certainly, if we did not have thoughts sometimes that we are not able to spin into words. We ought to keep something up our sleeves, and, talk as we will, we can't say all that Nature tells us. Still, the more you seek Nature and study her reverently and carefully, the more you will feel your way on the road to the town of Art, which is but a little hamlet in the great land of Nature. Art is very much like Antaeus of old, who renewed his strength whenever his feet touched his mother, the earth. We, too, are strong in our measure when we receive our impressions direct from Nature and not always at second-hand: and our art is strong, too, when we strive to faithfully convey those impressions to others without loss of freshness or vigour. So many people go to Nature with preconceived ideas. They look through other people's spectacles, and don't always see what there really is to be seen. There are cobwebs in our poor brains, and we look athwart them and fancy they stretch right across the sky, but it is clear enough to the open mind. I took a friend once into a beautiful valley, and showed him a very fine bit of natural composition. He admired it after a fashion, but fancied a water-mill in the foreground would be an improvement. That man had not forgotten his school drawing copies. What could Nature say to him? We must not go to Nature with rules, but we ought to analyse everything that pleases us, and strive to discover the laws which govern that pleasure-giving, that we may seek such laws to rule over the work of our hands—our art. Composition is only the recognition of the laws of Nature and the introduction of them into our work.

(*To be continued.*)

THE Royal Buckhounds have been a great deal in evidence lately in the columns of the daily papers, and an authoritative description of the Hunt by Lord Ribblesdale, the Master of the Hounds, comes at a specially opportune moment. His lordship is to be congratulated on his determination to tell the public all about the Hunt, and its surroundings, in an article that is to appear in the April number of the *English Illustrated Magazine*. Messrs. Elliot & Fry, the eminent photographers, paid a special visit to the royal kennels to take a series of views representing the main features of the Hunt, and a selection from these will appear in the article, doubtless adding considerably to the wide interest sure to be evoked by it.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, MARCH 10, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

NOTICE TO OUR SUBSCRIRERS.

Subscriptions are now due for the ensuing year.

The Publishers request that the amount be remitted at once—all Subscriptions being payable in advance.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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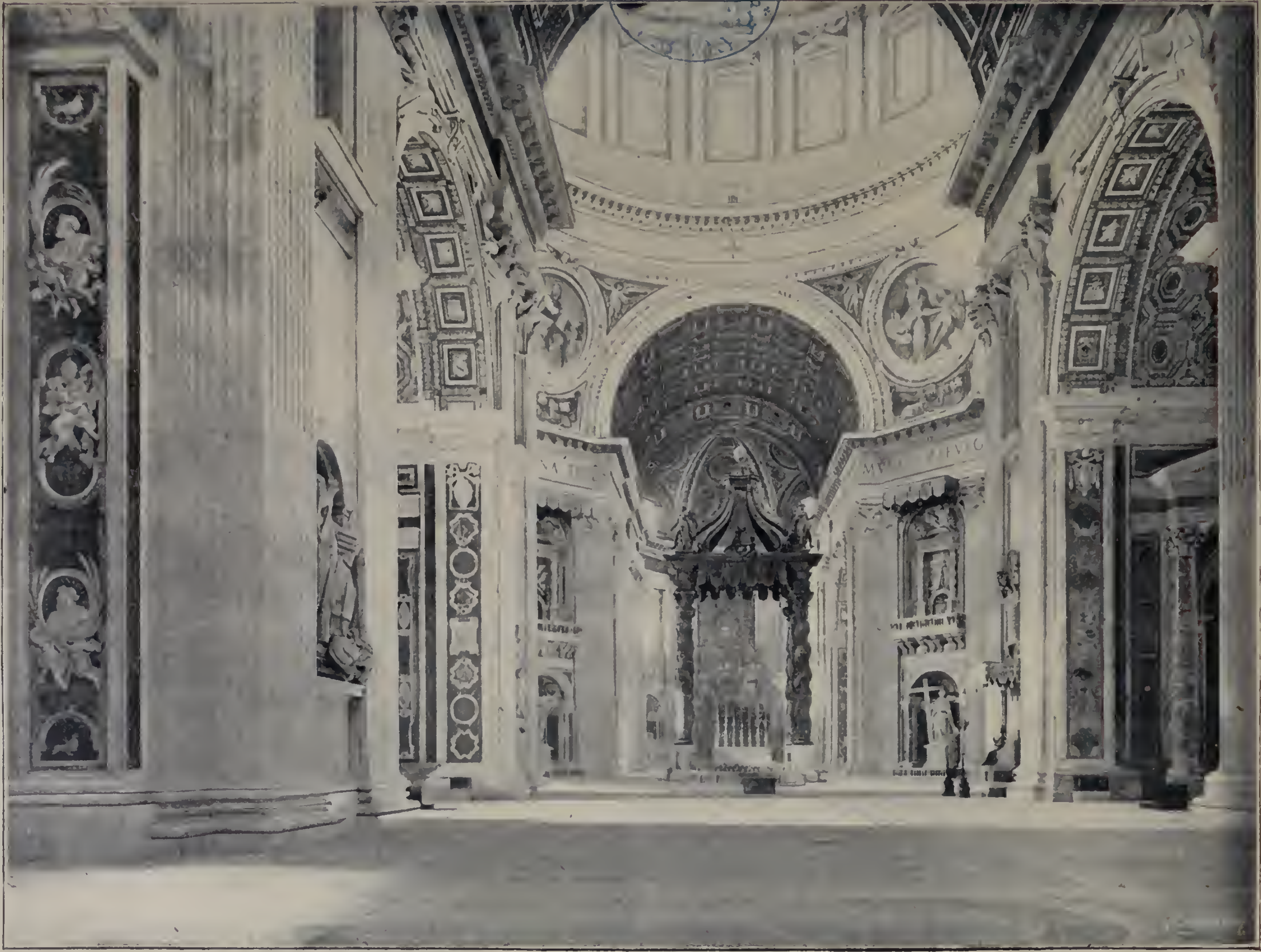
THE TELE-PHOTO LENS.

MR. DALLMEYER'S paper on his new lens for photographing distant objects, which was read before the Society of Arts last week, attracted an appreciative audience, and we must congratulate him upon the evident interest which it excited. It is often the case that the discussion which a technical paper brings forth is more interesting than the paper itself; and although this can hardly be said to be the case the other night, it is true that the discussion dealt more with the readily understood practical applications which may be found for the lens than with the more technical subject of its optical principles. Mr. Dallmeyer's paper was, indeed, so exhaustive that there were no points concerning its construction or properties which were left unexplained.

As examples of what the lens was capable, there were exhibited in the theatre the two remarkable views of Mont Blanc taken by M. Boisonnais, one of which was reproduced in the PHOTOGRAPHIC NEWS a few months ago, besides several lantern pictures, which afforded, by comparison with slides taken from the same point of view with an ordinary long-focus lens, remarkable evidence of the far-seeing qualities of the new instrument. In one picture, taken with an R. R. lens on Wimbledon Common, the well-known windmill formed the only object, and that a very small one, which stood above the wide expanse of grassy flatness. In the companion picture, taken with the tele-photo lens, the windmill became a large and prominent thing, while, to surprise everyone, a human being in the middle distance came boldly into view, although he was quite indistinguishable in the former picture. And let it be observed that this same figure, taken at a distance of half a mile from the camera, was neither blurred nor ill-defined, but a full-length portrait, capable of immediate recognition. And here we see fulfilled a possibility which we put forward some time ago when this tele-photo lens first made its appearance—the possibility of obtaining pictures, which might be valuable for detective purposes, of persons situated at a long distance from the camera. Let us suppose, for example, that on some racecourse—where undesirable characters are not altogether unknown—a distant group of persons comprises one or two that the telescope reveals as being certain evil-doers under police surveillance. It is desirable, not only that they should be thus recognised, but that their presence should be recorded. Here comes in the tele-photo lens to make that record, which might possibly be of the greatest after-service for proof or disproof in a court of law. Of course, it will be said that the tele-photo lens would be useless in such a connection, because of the long exposure which it entails. But are we, in these days of extremely rapid plates, to say that we have reached finality in this respect? The present plates of our foremost makers differ more in point of speed with the first gelatine plates sold than did those plates with the much slower processes which they superseded. And is there any reason to suppose that with the present high rapidity gained by our makers we are to stop? We think not, but rather look forward to the time when, by modifications of procedure, the sensitiveness of the photographic plate will be so extreme that coating will have to be carried on in absolute darkness. Development would, of course, have to follow suit, and would become a more or less mechanical operation as it was in the Daguerreotype days, when the plate was shut up in a box while the vapour of mercury was applied to its delicate surface.

We must also say a word or two about the other lantern illustrations shown. In the case of a near view of St. Alban's Abbey, taken with an ordinary



[See page 155.]

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lens, the building, and more especially the tower, was foreshortened to a distressing degree. A picture taken with the tele-photographic lens from a point a mile distant gave a far better view of the building, and one which would be of far more value to a student of architecture. In another picture a distant boat-house, quite invisible in one picture, is brought out with the new lens, so that every detail of its construction is plainly set forth. We were also shown groups of cattle which, looking like dots in the landscape in the ordinary photograph, become living animals in that taken under the new conditions.

Mr. Dent opened the discussion with foreshadowing the great value of the new lens in exploration, especially in mountainous countries, and advised all persons engaged in such enterprises to take advantage of this new aid to their work. He alluded particularly to the Mont Blanc photographs, and pointed out how wonderfully the details, which were distant so many miles, were brought out in the pictures. The next speaker gave evidence of the value of the lens in similar work, and told how on one occasion he obtained a picture full of detail of a distant castle. The Chairman, Captain Abney, in his general summary of the advantages of using the tele-photo lens, told how in some respects the modern method of taking a negative was less perfect than the first-practised processes. He alluded to the extreme delicacy of the Daguerreotype image, which allowed of infinite after-magnification without any trace of grain. This was seen long ago in the case of a small picture of certain fortifications taken at a distance of four miles. By a system of microscopic observation, breaches in the walls caused by artillery, and even detached stones, could be easily detected. The value of the tele-photo lens in such work as this need scarcely be pointed out, and it is certain that such an instrument must form part of the equipment of any future military enterprise. We have already stated that the tele-photo lens is to be put on its trial next month as a solar eclipse recorder, and we doubt not, from an examination of certain astronomical photographs already taken by its aid, that it will give a good account of itself. It is quite obvious that this lens is no mere experimental toy, but that it will be found of the greatest service in many fields of scientific work.

In the Fine Arts exhibit at the World's Fair, Chigago, will appear three pictures from Windsor Castle, loaned by Queen Victoria, and several from the Prince of Wales' collection.

Photographic societies who wish to include a demonstration of the Sandell multiple-coated plate among their prospective arrangements should at once communicate with Messrs. Thomas & Co., of 10, Pall Mall, who have appointed Mr. Herbert S. Fry to act as demonstrator.

OUR ILLUSTRATION.

OUR full-page illustration this week is an interior view of St. Peter's, at Rome, which was taken in November last by Mr. Sandell on one of the multiple-coated plates with which his name is associated. The original negative measures 15 in. by 12 in., and it was exposed for two and a half hours, with a view to obtain detail in the shadows. But, in spite of this long time, the lights are not clogged, although a row of white glass windows is immediately opposite the place where the camera stood. It need hardly be said that in the reduced reproduction the picture loses much of its effect. This picture is one of a number which were taken on the Continent by Mr. Sandell, and we understand that it is his intention shortly to exhibit them.

BLACKHEATH CAMERA CLUB.

THE Exhibition of this Society, founded in 1891, which we visited last Saturday, is distinctly interesting. Taking the pictures in the order of the catalogue, Nos. 20 and 21, two fine studies of animals, attract us, though we seem to be somewhat familiar with No. 20. No. 34, "Autumn at Frognal," E. Hawkins, is very delicate and silvery, and has appropriately been silver medalled. Nos. 41 and 42, Miss Rucker, shows a desire, much to be commended, to make pictures tell a story, though a little bit foggy in execution. No. 66, a frame containing four scenes in the Lermatt Valley, has an "honourable mention" for some reason not quite apparent. No. 68, "An Irish Smithy," by Howard Esler, is very strong and realistic, but shows bad composition. Two men, each at one end of a horse and each against a white wall, is not a happy arrangement, and, besides, the picture would be much better if it had about two inches cut off the bottom. No. 80, "Blowing-up Pontoon Bridge," by P. L. Parsons, is very interesting. No. 96, "A Sluggish River," Geo. Lamley, a very pretty photograph, but spoilt by what many photographers seem to suffer from—bad composition. This photograph is practically two pictures; for you cannot, in nature, see both the bunch of rushes in the foreground and the distant trees at the same time; if nearly all the foreground, say one and a half inches, were cut off, it would greatly enhance the pictorial value of this pretty piece of work. Nos. 104 and 105, "A Surrey Brook" and "After Sundown," are the gems of the exhibition. No. 104 has an "honourable mention," while No. 111, "A Winter Sunset," by F. W. Brownrigg, a much inferior work, has a silver medal. Though both 104 and 105 are excellent, we humbly beg to distinctly prefer 105; it is beautifully composed, it is charming in colour, which gives it a kind of sunset glow helping to carry out its story, and it serves to prove that though the camera is only a machine, when it has a person like Mr. Charles Moss behind it, it can produce photographs that are pictures. No. 107, "Westminster Abbey," by F. W. Edwards, is much too large in scope; it makes a good map, but it involves too large an angle of vision. No. 158, "A Morning Polish," George Harding, a very pretty photograph, but the figures are out of proportion, taken from too near a standpoint. No. 175, "A Fair Fruit Seller," S. N. Bhedwar (silver medal), pretty face, bad composition all over, and artificial-looking woman in middle of picture; there are several other photographs of Indian scenes by this gentleman which, if not very commendable as pictures, are otherwise very interesting. No. 216, "How's That," R. H. Lord, a good photograph of character, but picture spoiled by figures being equidistant. No. 230, by J. H. Gear, and labelled "Taken out of Doors," represents an *interior*, with an old crone beckoning to a naked boy to come and be washed; it is ugly and, as it admits, untrue. No. 231, by the same hand, is a very good and rich study of cottage and figures, but there is too much in the foreground and the artist was too near his subject, consequently the objects in front dwindle away into fuzziness, instead of being more clear and distinct than other parts of the picture. No. 234, by R. W. Robinson, very good, but again a fuzzy foreground. No. 236, by the same hand, very nicely arranged group, man talking to a child, who is sitting on a woman's back, but the landscape is all out of keeping; the bridge is not very far really from the figures, and yet it is all in a fog, and the distance behind the man is still worse; it is what might have been a charming picture spoiled for want of care. If it is worth while to take the pains to get the figures so well, surely it is worth while to pay a little more attention to the background; all the charm of the good work is upset by the more attractive obtrusiveness of the inferior work. It is a mistake to suppose that indifferent surroundings are an assistance to your principal objects; particularly, as in this case, where the landscape is an important part of the picture, the better the subject the better the accessories. No. 275, J. Dotteridge, very sweet and silvery, and the foreground water keeps its place. In addition to the pictures we have alluded to, there are many others of more or less merit; and in the latter category there are some dreadful examples of professional portraiture, about as bad a one as any being the portrait of the President of the Society, which greets you on your entrance. It has always been urged on the part of the professional man that he did bad work because his patrons liked it and would have no other; but the work exhibited at this and many other societies seems to point to the contrary; for if amateurs, who constitute a portion—and nowadays a not inconsiderable portion—of the public, try after, and, more often than not, succeed in obtaining, good artistic work, it shows that they and their friends give it a preference to that which is bad and inartistic, with all the "nature" retouched out by someone little better than a mechanic. Therefore it appears they would rather have good work if they could only get it.

Alick Cooper.

LANTERN SCREENS.

BY CHAS. A. PARKER.

II.—The Preparation of Linen or Calico Screens.

As before stated, the projection surface of the itinerant lanternist invariably takes the form of a flexible material, such as calico or linen sheeting, which is very often faced with paper or distempered with whitewash, prepared in the manner described in the preceding article in order to increase its opacity. When a small-size screen of this description is employed it can generally be obtained in a single width, and is consequently seamless; but in the larger sizes it is usual for a wide width to be sandwiched between one or more narrow widths in order to form a sheet of the size required, all the seams being arranged horizontally and never vertically. Plain bleached cotton sheeting of stout texture is undoubtedly the cheapest material to employ for the purpose; but unfortunately it seldom washes well, on account of the quantity of dress invariably employed in the process of manufacture, and in consequence it is not to be recommended for hard wear unless of good quality. A good heavy linen sheeting is far preferable to calico, and although the first cost may be thought considerable it will not be money wasted, as this material is capable of withstanding a much greater amount of wear and tear, besides which the superiority of the surface will be found to greatly enhance the appearance of the picture. Much good work may, however, be done by the aid of a calico screen; therefore the operator should be guided by the state of the exchequer, and make his choice according to requirements.

Plain bleached linen or cotton sheeting is readily obtainable from any large drapery establishment, in all widths from one to three yards wide, the prices varying according to quality and texture or the width of the material. In making a large-sized screen it will be possible to avoid a central seam by employing one wide width for the upper portion and another narrower width for the lower part, so that the seam may come at the bottom of the screen, where it will scarcely be noticed owing to the foreground of a picture being usually represented by shadow. The two widths of material will require to be sewn together with very great care, in order that they may not draw or pucker when the sheet is strained to its utmost on the screen stand. The stuff will simply require sewing together edge to edge, and should on no account be doubled, as this would cause the seam to show as a broad white line across the face of the screen. It will be found advisable to strengthen the outer edges by binding them all round with some stout, well-shrunk venetian blind webbing, which may with advantage be of double thickness at the four corners. If the operator intends to hang the screen by means of a rope stretched across the hall from side to side, it will be necessary to provide the top edge of the sheet with a wide hem through which the rope may be passed. A hem of this description will frequently be found useful when a stand is employed, as it will enable the operator to pass the top pole of the stand through the hem, provided that the latter has been made of sufficient size to admit of its passage. It will also be needful to make provision for tightly straining the sides of the screen in order that it may present a uniformily even surface free from creases or folds. This is best accomplished by means of large-size brass cyelets, sewn round the sides of the sheet at a distance of about eighteen inches apart, or if preferred brass hooks bent to the form of a figure 8 may be used instead. When the screen is intended for use on a stand, eight-inch lengths of tape will be found much more convenient than hooks, but it will be needful for them to be sewn on securely.

The following examples will serve to show the cost of home-made screens of various sizes, the quotations of the material per yard representing a fair average price to pay for bleached plain linen sheeting of good stout texture :—

For a 9-foot screen :—

3 yds., 108 in. wide, at 6s. per yard ...	£0	18	0
	£0	18	0

For a 12-foot screen :—

4 yds., 40 in. wide, at 1s. 8d. per yard	£0	6	8
4 ,, 108 ,, ,, 6s. ,,	1	4	0
	£1	10	8

For a 16-foot screen :—

5½ yds., 45 ins. wide, at 2s. per yard	£0	11	0
5½ ,, 108 ,, ,, 6s. ,,	1	13	0
	£2	4	0

For a 21-foot screen :—

7 yds., 72 ins. wide, at 2s. 11d. per yard	£1	19	10
7 ,, 108 ,, ,, 6s. ,,	2	2	0
	£3	1	10

A screen made of plain bleached cotton of good quality would cost considerably less, as the following example will serve to show :—

For a 21 foot screen :—

7 yds., 72 in. wide, at 1s. 4d. per yard	£0	9	4
7 ,, 108 ,, ,, 2s. 5d. ,,	0	16	0
	£1	6	3

Linen sheeting can also be obtained in a cheaper make than the above-named prices, but it is naturally of much thinner texture. The prices usually commence at 1s. 1d. for 40 inches ; 1s. 4d. for 45 inches ; 1s. 10d. for 72 inches : and 2s. 10d. for 108 inches wide.

(To be continued.)

◆

The Imperial Plate Company have announced their intention of sending samples of their plates to anyone on receipt of bare cost of postage. This company—of whose works we published a description at the time of their establishment, a year ago—have, since that time, so increased the capacity of their premises and machinery that they are now in a position to execute the largest home or foreign orders at the shortest notice, and such orders, we learn, come upon them in constantly increasing numbers.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

3,699. Henry William Taunt, 9, Broad Street, Oxford, "Improvement in Stand for Photographic Camera."—*20th February*, 1893.

3,847. Robert Mitchell, 15, Langham Place, Regent Street, London, "Improvements in the Production of Lantern Slides and other Transparent Photographic Images, in which are also contained an Improved Means of Transferring Photographic Reproductions to Porcelain, Metal, and other Surfaces."—*21st February*, 1893.

3,919. Anthony Philburn, Hall Court, Ashton-under-Lyne, "An Improved Pneumatic Shutter for Photographic Purposes."—*22nd February*, 1893.

3,989. John Irvine, 32, Demense Road, Alexandra Park, Manchester. "Irvine's Improved Twin Lens Hand Camera."—*23rd February*, 1893.

4,030. Fox Shew, 1, Queen Victoria Street, London, "Improvements in Shutters for Photographic Lenses."—*23rd February*, 1893.

4,057. John Veda Robinson, The Green, Malahide, co. Dublin, "An Improved Photographic Camera for Portraiture and for Studio Work."—*24th February*, 1893.

4,065. William Middlesmiss, Sunbridge Chambers, Bradford, "Improvements in the Construction of Hand Cameras and Dark Slides therefor."—*24th February*, 1893.

4,081. John Edward Thornton and Edgar Pickard, The Thornton-Pickard Manufacturing Company, Altrincham, "Improvements in Photographic Shutters."—*24th February*, 1893.

4,141. Ulysses S. Rush, Herbert L. Jenkins, and William Gosslin, 55, Chancery Lane, London, "An Improved Photographic Printing Apparatus and Process."—*24th February*, 1893.

4,167. George Wishart, 87, St. Vincent Street, Glasgow, "Improvements in and connected with Extension Linkages for Photographic Cameras and other Collapsible Apparatus."—*25th February*, 1893.

4,183. Tom Miller, 53, Arcade Chambers, St. Mary's Gate, Manchester, "Improvements in Photographic Cameras."—*25th February*, 1893.

4,188. Rankin Kennedy, 1, Clifton Villas, Camden Square, London, "Improvements in Electric Retouching of Photographs and in Apparatus therefor."—*25th February*, 1893.

4,214. William Hall Walker, 47, Lincoln's Inn Fields London, "New or Improved Apparatus for the Manufacture of Films, more especially intended for the Manufacture of Films for Photographic Purposes."—*25th February*, 1893.

◆

The Michigan World's Fair Board will make an exhibition of its newspapers at the coming big show at Chicago. The first page of every newspaper or magazine published in the State will be mounted on a wood veneer leaf, varnished the same as mounted maps are prepared, and hung on leaf standards.

PATENT OFFICE

PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

Technical Meeting, February 28th.—Mr. Andrew Pringle, Vice-President, in the Chair.

Mr. Chapman Jones announced that the Council had reappointed him hon. secretary, Mr. E. Clifton hon. librarian, and Messrs. J. Cadett and H. A. Lawrance members of Council.

Mr. T. P. Watson exhibited and described the "Genie" American hand-camera. The magazine, which was extremely compact, held twenty-four films. The complete camera, and films for ¼-plate, weighed five pounds.

Mr. L. Warnerke exhibited a paraffin stove which had been invented by a Lapp, and which sold in Russia for about 15s.

Mr. Chapman Jones exhibited a negative developed with an amidol developer made decidedly acid with sulphurous acid. He remarked that he could not see the slightest difference in the results with a developer containing commercial slightly alkaline sulphite and a developer acidified with sulphurous acid, and which remained acid after development.

Col. R. W. Stewart, R.E., read a paper on Panoramic Photography, and exhibited his own "Panoram" for that purpose.

The Pantoscopic Camera was also on view, and Sutton's Panoramic Water Lens.

Mr. J. A. Harrison remarked that the "Panoram" was constructed upon much the same principles as the Pantoscopic Camera; but at the time, however, when the latter was constructed, films were not available.

Mr. W. E. Debenham contended that Col. Stewart's proposition, that panoramic perspective was in itself truer than plane perspective, was a mistaken proposition. Panoramic perspective, he said, when the picture was seen as a flat plane, was essentially false. Mercator's projection had been quoted, but any one who looked at Mercator's projection would be struck with the extraordinary exaggeration of size between Greenland and the tropical countries.

Mr. J. Traill Taylor, who had taken the chair after Mr. Pringle had vacated it, said that a picture subtending an angle of eighty degrees on the base line with a wide angle lens is very false in perspective. By photographing a row of spherical balls, the centre ones would appear round, but as they approached to the margin they would be seen to expand laterally. They should be examined from a point of view equal to the focus of the lens. In a cylindrical picture the eye should be placed in a similar way, and the picture looked at close, and then it would all be perfectly truthful. Both perspectives were wrong unless the pictures were looked at properly.

After some remarks by Messrs. Samuels, Warnerke, and Gotz,

Col. Stewart replied shortly, and a vote of thanks was passed to him for his paper.

Ordinary Meeting, March 14th, at 50, Great Russell Street.—"Naturalistic Photography," by P. H. Emerson, B.A., M.B.

London and Provincial Photographic Association.

March 2nd.—Mr. W. H. Harrison in the Chair.

The recent Affiliation lecture and demonstration of photogravure being mentioned, Mr. W. E. Debenham said that so far as making the engraved plate was concerned, all that was necessary had been shown, and he hoped that some of the members, if they had not already taken it up, would do so shortly and bring their results for the encouragement of others. The printing itself, as well as the steel facing, it would be better in the first instance to give out to be done.

The Chairman said that with fine printing very much depended on the ability of the printer.

Mr. T. Bolas looked upon the manipulation of the plate by the printer as very important. A machine had some years since been brought out for automatic printing and wiping of the plate: but this, of course, did not permit of the special deepening or softening of certain parts that was in the power of a capable workman.

Mr. P. Everitt quoted Hamerton to similar purpose.

Question: Are ferroprussiate prints permanent; and, if not, how can their permanency be improved?

Mr. Atkins had some ten years old, and they were still as good as at first.

Mr. J. T. Teape also had some of the like age of which he could say the same.

The Chairman said that blue prints were easily attacked by alkalis, and he thought that an atmosphere rich in ammonia would be injurious. He inquired of Mr. Cadett whether he had found dry pyro subject to change?

Mr. Cadett replied that, after keeping for a year, it had become considerably deteriorated, but this did not show much till it was made into solution.

Question: What would be the best paper to send to the Gold Coast? The inquirer had found that bromide, albumen, and platinotype papers all spoiled before they could be used.

Mr. W. E. Debenham suggested that collodio-chloride paper should be tried.

Mr. T. E. Freshwater had seen some very good photographs on albumen paper produced by a photographer in the locality indicated. He also mentioned that he had seen some very fine photomicrographs of a podura scale taken with an uncorrected lens without alteration of distance for chemical focus. The negative had been taken on an isochromatic plate by lamplight.

Mr. Teape suggested as a means for preserving silver prints that they might be coated on both sides, first with weak gelatine and then with spirit varnish.

British Astronomical Association.

At the last meeting of this Association, Mr. Schooling read a paper on Astronomical Photography, in which he pointed out what could be done in this direction by amateurs of moderate means. Owners of reflectors mounted equatorially could commence work with the single addition of a plate-holder in place of an eyepiece, while a refractor corrected only for visual rays could be used in the same way, the actinic focus being found by trial. A lens at the eye end can be used for enlarging purposes, and where there is insufficient light it is better to enlarge in air while taking the photograph, than to enlarge from a small negative. The tele-photographic lens recently introduced by Mr. Dallmeyer would be of very great use for getting large images. The mounting of a telescope for photography must be equatorial, and the twin form as used by Dr. Isaac Roberts is very convenient, a refractor being carried at one end of the declination axis and a reflector for photographic work at the other end. For long exposures a good clock is absolutely essential, and it is better to spend a given amount of money on a small instrument with a good clock rather than on a large instrument with a bad one. Mr. Schooling did not think that the sun offered a very promising field for the amateur, believing that spot-recording and measurement was hardly amateur work. Photography in connection with spectroscopy was not touched upon. The moon was easy enough to photograph, but the most useful work under this head was enlargements, and by means of the tele-photographic lens. With this enlargements might be obtained on the scale of the Lick telescope. There were many good plates to be had, but, speaking from his own experience, Mr. Schooling recommended Lumière and Ilford isochromatic plates as very suitable, while Wratten and Wainwright are always reliable. He had also used plates, with emulsion of different degrees of sensitiveness superposed. This seemed useful when objects of varying brightness, such as bright stars and nebulæ, had to be taken together, and it proved very useful in preventing halation. This reflection from the back of the plate can be avoided by the use of backing papers—orange paper—sold ready gummed for sticking to the backs of the plate. It is the best plan to stick to one developer, as the negatives are then more comparable with one another. In developing star negatives especially, use plenty of light, let the dish have a cover over it, and only look at the plate for a moment at a time. Plenty of safe light is necessary to see how long you can go on. Star negatives are more often under than over developed. The interpretation of the negatives, when you have obtained them, is a matter of difficulty, requiring considerable patience and skill. Now comes the work that can be done with a portrait-lens, and it is worth while to consider carefully what it is suited for. The special benefit of a portrait-lens is the shortness of its focus. Another point is the size of the field. While a low power on a telescope will include about 1°, a portrait-lens will cover 10°, 15°, or even 20°. There is an advantage in using a larger plate than the lens will cover perfectly, inasmuch as the centre of the plate will give good definition of the objects especially wanted, while if any new objects are in the field they can be detected, even if the definition is bad, as it would be near the edges of the plate. For the sun, moon, and planets portrait-lenses are useless. Minor planets can be easily detected by their trails, and are quickly recorded by a portrait-lens. Ten of these have been discovered photographically within a year. This lens is equally suitable for comets, and Mr. Barnard has already discovered one by this means. During the course of his lecture, Mr. Schooling had a large number of lantern slides, mostly lent by Mr. Wheeler, thrown upon the screen. In conclusion, he saw no reason why a dozen members of the Association should not be engaged in this work, and he looked forward to the establishment of a photographic section.

HACKNEY PHOTOGRAPHIC SOCIETY.

THE one-hundredth ordinary meeting was held on Tuesday, Mr. F. HOUGHTON in the chair.

Mr. HUDSON handed up a home-made shutter; the working was, however, too stiff in its action.

Mr. A. BARKER presented slides to the Society for sending out.

Mr. GRANT showed some print-out opals.

A discussion ensued on the desirability of the Society being represented at the forthcoming Crystal Palace Exhibition. The matter was referred to the Council to be thrashed out.

Mr. VINING asked what is a simple way of obliterating portions of a negative so as to omit some in printing, and without leaving a hard line.

Mr. GRANT said that Mr. H. P. Robinson described the method in his book.

Mr. AVANT asked what had the Society done about the proposed new lantern lenses. Through the kindness of one or two members, it was decided to purchase two, made by Messrs. Swift.

The *Photography* prize slides were then shown, after which slides by Messrs. A. Barker, S. J. Beckett, Dean, Grant, Hull, Moore, Harvey, Roofe, Taverner, and G. W. Wilson (of Aberdeen).

The HON. SEC. announced that Mr. A. Brooker (of Hastings) would give a lantern lecture on Winchelsea and Rye next meeting.

NEWCASTLE-ON-TYNE AND NORTHERN COUNTIES PHOTOGRAPHIC ASSOCIATION.

Ordinary Monthly Meeting, Tuesday, March 14th, at 7.30 p.m.

Business :—

Minutes.

Election of new members.

"A Talk on Copying by Artificial and Day Light, with Demonstration and Exhibition of Negatives," by EDGAR G. LEE and JAMES BROWN.

Discussion to follow.

LEEDS PHOTOGRAPHIC SOCIETY.

Meeting held on the 20th ult.—Lantern night.—Mr. WARBURTON, Vice-President, in the Chair.

THE Photographic Societies of Great Britain Affiliated Societies Convention set of slides were exhibited, representing scenes in and around Plymouth, showing it to be a place full of interest to the photographer: and those who attend the Convention there this year will be amply rewarded by having abundance of good subjects for the camera.

The Camera Club also kindly lent their A. and B. set of slides to the President, Mr. Walker, who is a member of that Club; the sets were very much admired, and could scarcely be otherwise, as they have been produced by several of the best men of the day.

Some very beautiful flower studies were exhibited by Mr. Rodwell which called forth much admiration. They were taken on orthochromatic plates, developed with pyro—the lantern slides ordinary developed with amidol. Mr. Warburton also showed some slides, scenes on the sands, figures, &c., and showed his usual skill in producing good work.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Meeting held in the Y.M.C.A. large room, February 28th.

THE CHAIRMAN (Mr. Goode) introduced the lecturer, Mr. GEO. BANKART, of Leicester, an honorary member of the Society, to the meeting. Mr. Bankart had brought with him 200 slides, principally of Derbyshire, the Lakes, Scotland, and Ireland, and the large audience received them with enthusiasm. All photographers present would certainly add to their knowledge of the principles and practice of composition from the masterly collection of views shown; perhaps more especially of the treatment of the foreground. The lecturer's interesting remarks on the history of the places shown added greatly to their enjoyment. All present agreed that there had not been one view too many on the screen, and look forward to a further instalment at no very distant date.

WEST LONDON PHOTOGRAPHIC SOCIETY.

On the 28th ult., Messrs. **Stein** and **Varden** read their joint paper on "Round West London with Cycle and Camera." After detailing how a few members of the Society had banded themselves together into a cycling division, the authors dwelt on the advantages of cycling combined with photography. The cyclist did not feel the weight of his camera, for it was carried on his machine.

The paper was profusely illustrated by the lantern, the slides being from photographs by the joint authors, commencing with a short series of pictures illustrative of the evolution of the modern cycle.

The authors described very happily a circular cycle trip that could be easily managed in one day, starting from Chiswick and taking their audience in imagination through Acton (or Oaktown), Ealing, Hanwell, Perivale, Greenford, Northolt, Harrow, Pinner, Eascot, Northwood, Ruislip, Hillingdon, Uxbridge, Cowley, West Drayton, Longford, Harlington, Hayes, Heston, Osterley, Isleworth, Brentford, Boston Road, Strand-on-the-Green, and back to Chiswick by way of the Mall, Hammersmith, and Stamford Brook Green. The journey thus indicated was described in detail, with much interesting information about the places visited, both as regards their past history and present appearance; and in the interests of those members who require a plentiful supply of landmarks to guide them, the authors mentioned by name the many wayside inns they encountered on their journey.

The run described included but a part of the western district of London, and there were other routes of equal interest, embracing such places as Esher, Weybridge, Ripley, Virginia Water, Windsor, Kingsbury, Roe Green, Preston Green, Stanmore, and Whitchurch.

The paper not being of a kind to invite controversy, there was no discussion.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

The ordinary monthly meeting of this Association was held in the Club Rooms, Eberle Street, on Thursday, February 23rd, Mr. A. J. **Cleaver**, President, in the chair. Five new members were elected.

Mr. G. A. **Carruthers** exhibited and explained his ingenious magnesium flash lamp, and photographed a group of members as an experiment. He afterwards passed several very excellent slides through the lantern, the negatives being taken with the lamp.

The **President** called on Mr. F. **Clibborn** to give his lecture, entitled "A Little Tour through Ireland," illustrated by a set of high-class slides made by Mr. G. E. Thompson. The lecturer gave a very lucid description of the various views, and frequently was very humorous, to the delight of a large and appreciative audience.

On Thursday, 2nd March, Mr. F. **Anyon** gave a practical demonstration on "Developing," "Reducing," and "Intensifying," which proved very instructive to the large number of members present. Mr. Anyon strongly recommended pyro and ammonia as the best developer.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

The first of a series of elementary technical classes, to be given by the above Society, was held on Wednesday, the 1st inst., Mr. J. **McIntosh** taking charge of the class. He explained the different sorts of lenses, their uses, and how to test them; the stops and their uses, the relation one to another as regards exposure, &c.; the camera swing-back, rising front, giving various tests for correct register of plate and focussing, &c.; he also touched upon plates, and explained the advantages of backing the same. These classes are given expressly to help beginners, free of charge. Any gentleman wishing to attend should make application to Mr. G. Gosling, hon. sec., 13, Lausanne Road, Hornsey. An outing has been arranged for Saturday, 11th inst., which will be attended by several members of the Society, to give instruction in the practical use of the camera in the field, and will be followed on Wednesday, 15th inst., by an evening for developing the plates exposed.

LEEDS PHOTOGRAPHIC SOCIETY.

A meeting was held on the 2nd inst., Mr. **John H. Walker** (President), in the chair.

Mr. W. D. **Welford** read a paper on "Practical Hand Camera Work." Mr. Welford is so well known in the photographic world, and being recognised as a specialist in hand-camera work, his ability to interest and instruct induced a large attendance of the members. While he agreed with most workers that the hand camera should not take the place of the stand camera for really fine work, it had its place and department in which it excelled, such as street scenes, character and life on the sands, in the market-place, &c. He had about seventy slides passed through the lantern, which were pronounced very excellent.

Mr. Welford, like many others, is frequently asked, "What is the best hand camera?" but, like most men of experience, states that there is no universal pattern; that nearly all (of the better class at any rate) in the market are good, each possessing special merits of its own: but he has a preference for those having automatic changers for either plates or films.

Dr. **Jacob** proposed, and Mr. **Godfrey Bingley** seconded, that the best thanks of the Society be given to Mr. Welford for his interesting and instructive paper and show of slides, which was heartily accorded to him.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

J. C. D.—We think that you would get the contrast you require by slightly lessening the exposure. There is certainly very little fault to be found with the prints, and the black margin with the white lettering upon it would indicate that the paper itself is not to be blamed. It is quite refreshing to hear of anyone like yourself who is experimenting in this way.

P. N.—We can only refer you to our advertisement columns. It is obvious that we cannot show partiality in such a matter.

Joss.—You will find the recipe you want among the formulæ given in the last Year Book.

E. B. C.—We can only explain the difference in behaviour of the plates by supposing that you have not been careful enough as to the temperature of your solutions. Try again.

E. and S.—Your query cannot be inserted in this column, for it is of the nature of an advertisement.

Omicron.—It is not pleasant to be the first to raise the suspicion of *mala fide*, but the marks were so extraordinary that the idea was forced upon us. There is little doubt that someone could account for them.

A. P. O.—The most usual method is to work up in crayon, which requires the hand of an artist. The air-brush is also much used, especially in America, and it is capable of high-class work. You can hardly take up either method without apprenticeship.

*** Further answers unavoidably held over.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1802. MARCH 17, 1893.

PATENT OFFICE LIBRARY

NOTES.

"CORRECT likenesses, at two shillings and sixpence and five shillings each, in black, and ten shillings and sixpence in colours, taken in one minute by a patent machine, the property of Geo. Cryer, 68, Cornhill, where the most accurate portraits are taken in oil and miniatures."

THE above advertisement we copy from *Bell's Court and Fashionable Magazine*, dated December, 1808. We wonder what this machine was like, which took portraits in black or in colours in one minute. They were probably silhouettes, procured by some modification of the camera obscura, and afterwards coloured *secundum artem.* Or quite possibly the advertiser may have known of Wedgwood's experiments in printing on silver chloride which were brought before the Royal Society only six years earlier, and may have multiplied his silhouettes by the method thus indicated. It is at any rate interesting to note that a method of taking portraits by a patent machine was advertised as early as the first decade of this century.

THE new dynamite cruiser *Vesuvius*, which is the latest type of vessel turned out by the United States Navy, throws from gigantic air-tubes vast cylindrical shells, charged with dynamite, an innovation which many persons think will revolutionise naval warfare. Photographs have recently been taken of the shell at various portions of its flight, and these pictures will be relied upon to settle certain points with regard to the behaviour of these monster projectiles during their passage through the air, when striking water, &c. We reproduce, in another column, an interesting article upon the subject, which lately appeared in an American paper.

THE Delmen Art Studios, at 470 and 472, Holloway Road, were opened by a pleasant little social ceremony on Saturday afternoon. Messrs. Downey and Mendelssohn—whose artists will work this branch business—were present to receive their numerous visitors, and to conduct them over the extensive premises. The rooms are most elegantly fitted; they are lighted throughout by electricity, and are replete with every appliance necessary to a large photographic business. We wish the enterprise the success which it deserves, and which its splendid position foreshadows for it.

WE have received a copy of *Wilson's Photographic Magazine*, which now appears in a new, and, we think, much improved, form. It is published monthly instead of fortnightly as heretofore, and it has grown in thickness and general attractiveness.

IN answer to a correspondent, who inquires as to the explosiveness of flash-light mixtures, Dr. Wilson tells of a serious accident which may serve as a warning to fearless experimenters. He writes:—

> "For months past Professor Glasenapp, in Riga, who takes great interest in photography, has been experimenting with a view to discover an improved flash-light compound. He was the first to substitute the much cheaper aluminium powder for magnesium. In order to obtain a still more powerful agent, the professor experimented with a mixture of aluminium powder, chlorate of potash, and red phosphorus. In mixing these ingredients, he found a little lump of phosphorus, the inner parts of which probably had not become transformed into red phosphorus, but were yet in the yellow state, and consequently highly explosive. In trying to crush this lump with his right hand, the whole mixture exploded, tearing out one of his fingers and burning the others in a fearful manner."

WE insert the above as a caution, while fully aware that a large proportion of our fellow-mortals are quite impervious to anything in the shape of warning. There were last week three cases reported—and reported loudly too—of gas explosions caused by "fearless experimenters" seeking leaks with lighted candles. There will probably be the same number next week and the week after, and the week after that, until the gas companies are no more.

Another kind of explosion has been too frequent of late; we refer to that caused by the accidental ignition of ether. Many times have we been blamed for hinting that the ether saturator for lantern work is not a safe apparatus for unskilled hands to use. But even supposing that it is as safe as any other form of limelight apparatus, does not the use of a liquid which gives off an inflammable vapour at once introduce an element of danger which is worthy of careful consideration? Recent terrible accidents, through the upsetting of bottles of ether, urge this view most forcibly upon us.

The annual report of the Louth and District Photographic Society indicates prosperity, although the treasurer's accounts show a balance on the wrong side, for the number of members has increased, and the attendances at the meetings have been good. At the recent exhibition no fewer than two thousand persons passed through the turnstiles.

We recently referred to an excellent photograph taken at night, which was reproduced in the *Photo American*, the subject being a town hall illuminated. The producer of this picture, Mr. W. F. Hapgood, has very kindly sent us a direct print from the negative. He points out that in the extreme distance a display of rockets are to be noticed. The exposure, which lasted ninety minutes, was made from a window in the neighbourhood.

By an accident, Mr. F. P. Cembrano's name was omitted from the list, which we published last week, of gentlemen who will act as judges at the forthcoming Crystal Palace Exhibition. We are requested by the Executive to make good this defect.

The *Photographic Times* gives a very favourable review of our Year Book, in the course of which it says:—"This valuable annual comes to our table filled as usual with much useful information. The present volume is a decided improvement on its predecessors, both as regards the reading matter and its illustrations."

This, too, from our smart friend on this side, the *Morning Leader*, is comforting to us:—

"All the results of photographic experimenting during the past year are attractively chronicled. Several special articles by leading photographic authorities give an unique value to the contents. While it is deplorable to learn that the secret of photographing colours is yet afar off, it is cheering to know that the eternal stars are being brought nearer."

An amusing episode is reported with reference to Miss Barnes's return to New York, after her recent trip to England. She had with her an immense quantity of negatives taken in this country on American plates, and the surveyor of the port decided that these must pay a duty of 60 per cent., on the ground that they represented "American glass manufactures improved abroad," and the money had to be paid, but under protest.

On appeal from this decision to the Secretary of the Treasury at Washington, that functionary—he must surely be a bit of a wag as well as a photographer—reversed the decision, because the "exposure of a plate did not constitute sufficient evidence of its improvement, many of them being ruined by this treatment." (We quote from *Anthony's Photographic Bulletin.*) This was rather rough on Miss Barnes, but we are glad that she was relieved of the impost at the same time.

Statistics are, of course, irrefutable, otherwise one would hardly believe that during the last few years there has been a steady increase of sunshine in England. At least this is the opinion of Mr. George W. Bell, expressed at a meeting of the Royal Botanic Society on Saturday. It seems, however, that last year the total amount of sunshine was 1,214 hours, and this was in advance of any of the previous five years, the record of 1888 being, for instance, only 898 hours. Photographers will be very glad to hear this.

The death of Mr. Stephen Thompson, once well known in the English photographic world, is announced. Mr. Stephen Thompson was for some years connected with the photographic department at South Kensington Museum, and a frequent contributor to the photographic press. In 1880 he left England for Australia, and for some time was curator of the Art Museum and Public Library at Melbourne. He died in that city at the age of sixty-three.

Our readers will regret to learn that Mr. G. W. Wilson, of Aberdeen, died suddenly last week, on the very day after the last formalities had been completed which transformed his flourishing business into a limited liability company. Mr. Wilson had been identified with photography for half a century, and his name was known all over the world through the medium of the splendid work produced by his firm. He leaves a large circle of friends who will most truly mourn the loss of his genial presence.

ANACHRONISM IN ART.

BY "LUX."

IT has often been thrown at the photographer that he is given to being guilty in the above matter, that he is prone to give us portraits of ladies in ball dresses standing in front of a back cloth representing a landscape or leafy glade, and that the figures he sometimes puts into his figure and landscape composite pictures do not seem to mind from which direction the light on them comes, though nearly always it appears to have come through a window; consequently, you get a gentle, delicate landscape, showing only the diffused shadows of ordinary out-of-door daylight, while the figures are honoured with good fat black indoor shadows.

Not the last person in the world to throw this stone at the photographer is the Artist Painter. It may be true that sometimes in your photographic portrait of the lady who is smiling at the canary perched on her finger, that the unfortunate bird is rather off his balance and suggests the taxidermist; and that in your other picture of a lady standing in the landscape, the sun is shining one way in the background, but is illuminating the fair sitter's features from a diametrically opposite point. Well, never mind, Messieurs Les Photographes, suppose it is admitted, what then? Does not Mr. Painter Artist ever make mistakes; is he entirely guiltless in these little matters? Does he never paint a gentle shepherdess, and they, in the flesh, are generally evil-looking to look at, and evil-smelling to—well, get to leeward of? Does he never paint her with the delicate, chiselled features, brilliant orbs, and taper fingers of the novelist's duchess? Is not her linen of the driven snow, is not her waist perfection, and her bosom like unto that of a goddess? And yet recollection serves me to the effect that the genuine article is entirely innocent of what we call a waist, and she is usually quite square and flat, with the difference that where the twenty-inch waist should be, there appears an unpoetical robustness, and the goddess's bosom seems to have shifted on to her shoulder blades. And then, mark the prettily shod feet, in tasty slippers as a rule, with never a hole or a darn showing.

And who paints and draws the English soldier, say in the Mutiny time, galloping after the enemy and performing mighty feats of valour, on a spirited, high-actioned charger, that presumably has had no other food than bad grass for a month, which is *not* productive of much equine fire; the rider spotless as to accoutrements and uniform, and clean chinned and curly moustachioed, when, as a matter of fact, he probably has not seen a bed or a piece of soap for weeks? If he wears boots that were introduced twenty years after he was killed, and wields a sword, the pattern of which was used in the Peninsula thirty years before he was born, and if his horse's bridle could by no manner of means be got off without being cut off, and if his saddle, from want of proper girths, could only be kept in its place by an ingenious system of balance on the part of the horse and the rider. What then? How about that, Mr. Artist?

How often do we see, particularly in book illustrations (and this is where photography can be of such assistance), a modern lady and gentleman, may be, in a boat, the like of which was never seen out of a dream; said boat apparently having been built out of a cottage piano, as indicated by its timbers and size, allowing no room for the oarsman, and with the lady sitting opposite to him, so closely, as to suggest that they both must have lost their lower limbs, there being absolutely no space for their stowage, which inclines one to the idea that perhaps they are obliged to take their exercise aquatically, pedestrian exercise being unfortunately denied them.

Then the handsome oarsman grasps two straight-bladed, square-bodied sculls, such as might have been used in the dinghy belonging to the Ark; these he uses between tholo pins, instead of rowlocks, said pins being placed exactly on a line with his body and right under his elbows, so as to make it entirely impossible for him to row. After that, when you find that the boat, if measured over all, would be nearly five feet long, it occurs to you that a little less anachronism, if we may so call it, in the matter of boats would be a welcome change.

Then, Mr. Sporting Artist, you occasionally interest us. Your knowledge of guns—sporting guns to wit—is unique, and, of course, you never draw a sportsman shooting at a bird in such a position that the charge, if the barrel is as straight as it appears, must, according to all laws of direction, pass some two hundred yards behind or before his game; and you never draw a gunner with a gun to his shoulder which, if the butt were put on the ground beside its holder, they (the gun and the gunner) would be found to be of equal lengths, with possibly the added charm of a flintlock or percussion nipples.

We never, of course, see a picture of a man standing on a steep rock, salmon fishing in a waterfall, with a roach rod, several dead salmon lying by his side, said waterfall falling some fifty feet sheer; so that if a salmon by some unknown means could get hooked, he would have to do so in mid air after having swum up some thirty feet of perpendicular torrent, and then he would either get off or break the roach-rod, from want of running tackle, or pull the man off the rock, in which case, like Stephenson's "coo," it would be bad for the man. I do not speak without the book, or rather the picture, for what I have described is in a dealer's shop window at the present moment within a quarter of a mile of me.

Stand confessed, Mr. Portrait Painter, did you never paint a picture wherein you depicted your subject or victim as standing on apparently a mountain top, with a thunderstorm going off several inches below the soles of his boots, and a background of curtain, hanging in graceful folds from nowhere, unless it be a balloon. Shade of Sir Francis Grant, P.R.A.! did you never paint a portrait of one of the Devonshire family standing in front of a window, and by the side of a table, on to the top of which you could see, while *underneath*, among the sitter's feet and the table's legs, was visible the horizon and a bit of Chatsworth Park; and when your attention was called to the fact, that you could not very well see on to the top of the table if the horizon was some three feet (in the picture) below it, were you not case-hardened enough to use the remark, that the observer "didn't know what a deuced high place Chatsworth was"?

But, Gentlemen Painters, you are not so bad as you used to be, and in a great measure I think it is due to the fact that, instead of having to rely upon your memory, or imagination so much for necessary details, you can, and do, get great assistance from us photographers; for, if our photographs are not always pictures, they are generally pretty matter-of-factful.

People are getting more educated, and consequently more fastidious in art matters, and *will* have their details, and costumes, and accessories truthful. A case in point. A friend of mine, an artist on the staff of one of the illustrated weeklies, had to make a drawing lately of a naval subject, with a lot of naval officers in full uniform in it. He is always scrupulously, and even painfully, painstaking in his endeavours to be right in the matter of costume and period, and, in fact, is looked upon as an authority on matters naval. In this case, however, he made a mistake. There had been an alteration made by the powers that be, a few weeks before, in the manner in which aiguilettes were to be worn. On the appearance of the drawing the editor received some half-dozen letters from people calling attention to the "absurd blunder" made by his artist, and yet in the most recent photographs of naval officers the change does not appear.

As another instance of a careful man, I remember the late Fred. Walker, A.R.A., having to make a small drawing illustrating one of Thackeray's stories appearing in a magazine, representing a locksmith picking the lock of a desk. He would not draw it from an ordinary model got up to look like the character, nothing but the genuine article would suit him; so the neighbourhood had to be scoured to find a real locksmith who would come in and sit, and from him the drawing was done—a real locksmith picking a real lock. But everyone is not nor has been so careful, and as I finish this article I call to mind a picture I once saw abroad of a Crucifixion. The Christ is on the Cross in the centre, and the two thieves are on either side, while a monk—a *monk*, mark ye—is holding up a *crucifix* to one of the thieves, and at, and around the foot of the Cross are the soldiers playing dice, who are dressed in Louis XIV. costume. I think if ever there be a prize offered for the best bit of anachronism that picture will be there or thereabout—it ought to be—unless, indeed, it has the misfortune to be in competition with another that I know of, in which the Prodigal Son is shown driving home in a yellow postchaise.

THE CENTRAL PHOTOGRAPHIC CLUB.—The Executive Committee appointed by the public meeting on March 6th has already got to work, with the result that suitable premises and club rules are under active consideration. Another meeting will be called in a few days to consider the propositions of the committee. The hon. secretary *pro tem.* has received a large number of applications for membership, particulars of which will be sent in due course to the applicants.

PICTURES AND PICTURE-MAKING.

BY H. A. MUMMERY.

(*Concluded from page* 151).

NOW, after this long introduction, I am coming to what I want to speak to you about—viz., composition. We may look at the drawings of two men, both of which are of the same strip of country, both equal in merit. Yet one pleases and the other does not. One, perhaps, takes in a little bit to the right hand or left hand, or has in a figure or some cattle which the other lacks; it is a picture because of this. In fact it is composed, its orderly arrangement pleases us, we recognise a purpose in it. Now we paint a picture, or take a photograph, for the sake of some particular thing that pleases us; the rest of the picture is subservient to this main thing, should help to make it more beautiful, accentuate it.

Nature is fond of showing this marking of a principal object, and the dependence of the lesser. You will notice it in most of our beautiful leaf forms. In a well-composed picture there must be a balancing of the two sides, a balance either of masses or of interest, or even both. A very pleasing form of composition is the one shown in Turner's "Drachenfels," where the masses are unequal, but where the greater interest of the smaller mass makes a perfectly balanced picture; of course, I need not tell you that the less the method of composition forces itself upon the spectator the better is your picture composed. In the "Crossing the Brook," and the "Vale of Tempe," the balance is preserved by the masses, which, though pleasantly dissimilar in shape, are of pretty equal importance.

The weakest part of a picture is the centre, which should be kept as quiet as possible. Central composition is possible, as in Turner's "Norham Castle," but it requires so much arrangement that it is of little use to the photographer. One does not come upon rivers, as a rule, where the cows, boats, and men are so conveniently and beautifully arranged along the banks, as Turner has shown them here.

What I should say was at once the simplest and yet most beautiful form of composition is that where interest on one side balances mass upon the other. I referred to this a few minutes ago. You see it is so often found in Nature—the end of a clump of trees on one side of your picture, the stretch of distant country on the other—so very pretty and yet so common; or, even if you want to do a bit of composing on your own account, it may be easily done by the addition of a figure; or figures may give the interest sufficient to balance the larger mass of the other side; or it may be done by the grouping of some clouds when you come to print your skies in. Here is an instance of such interest being given by the sky and by figures: this is one of Turner's "Liber" prints, called "Hedging and Ditching." It is a wonderful bit of composition, just like Nature would do it herself, composed in what Constable used to call "God Almighty's style"—"Sir Francis, I am going to try and paint it in God

Almighty's style." Turner, who is the master of composition, often used to compose his pictures by lines as well as masses. You will notice, if you examine his work carefully, how sometimes a series of curved lines are formed leading the eye up to the principal object. Then, again, he often made use of repetition of forms. You have noticed, perhaps, in Nature repetition in calm and restful hours, the reflections in the water, or the monotonous procession of clouds across the sky, or often waves of the sea rippling on to the shore; the eye is soothed and lulled, because there is sufficient likeness between the various objects to cause monotony; there is no fresh effort of the eye needed as we look from one form to another.

In a good composition not only should there be a balance of the masses, but also a concentration of the light as much as possible on one part and the shadow on the other—of course it is false to try and force the light and shade of a picture—but on the choice of your subject you should choose those which are so arranged. Nature, as a rule, is wonderfully broad in her light and shadow, except in some flickering effects which I have referred to, and which I think do not as a rule lend themselves to the making of successful photographs.

I have been speaking mostly about harmony in art, but there is also another great factor—namely, contrast—where one object sets off another, not by any harmonious likeness, but by unlikeness; a warm colour against cold, light against dark, and so on.

I need say nothing to you about contrast, except that it is the life and soul of nature; there would be only a blurred mass in the place of our glorious, wide-stretching landscape if it were not for the difference in objects which make up contrast; but about strong contrasts, although they are frequent in Nature, and have been most successfully treated by our greatest painters, yet they are seldom pleasing, to my mind, when reproduced by the camera. Look at Norham Castle against the glowing evening sky! You could not get that richness and depth—could not see into the dark masses and feel the atmosphere between you and them in a photograph as you can in the picture. I may be wrong, but I think this is one of the limitations of your art.

Well, coming back to composition, one of our well-known artists remarks: "If we look over a number of instantaneous photographs, we may pick out many that in composition and effect are beautiful pictures, and there is no possibility of contrivance in those as there is when the incidents are arranged for the slower processes of photography. It is curious to notice how the less the figures are aware that they are being taken—in other words, the more natural the composition is—the more beautiful it often becomes." Whenever we make any alterations, put figures or skies in, we ought to strive for the same unity of purpose and simplicity that Nature uses. It is not a *good* plan to put in a heavy, unbroken sky with a full sunshiny country underneath it, or a stormy sea with a gentle, quiet sky above it. Such effects may be novel, but they are hardly beautiful. Do not for a moment think that I should accuse anyone here of such absurd blunders; but it really takes much study from Nature to avoid doing things almost as bad; and if your photography is to consist in merely choosing a view and taking it without any other additions, yet to do that choosing successfully wants much care and loving study. Nature is such a big thing, and when you can only take home a bit, it is such a difficult thing to find out which is the best bit. When selecting a subject, one is so often led away by interesting details; but it is a very good plan to half close the eyes, which will enable you to see the general grouping of the forms and light and shadow without being disturbed by the details. A piece of cardboard with a square hole cut in the middle, forming a frame, is also useful to look through, and enables you to see how far you can take your picture, and what to leave out or take in.

The French consider that a landscape is not satisfactory as a picture unless it comprises the three planes, the foreground, middle distance, and distance. I certainly think this is true; foreground alone is never very satisfactory as a picture. People want distance, something they can look into, especially when they are much shut up in rooms. When the middle distance is missing it is rather suggestive of theatrical scenery, where the rocks or foreground trees stick up right against the distance without any intervening plane.

I should like to make a few remarks about figure subjects, although it is really quite outside my own work. Our later nineteenth century figure painting is very wonderful; not but that the human figure was not painted very wonderfully indeed long before our time; still there has been a distinct recognition of a natural law that makes our modern pictures very telling. Everyone has noticed, perhaps, that when they look attentively at any figure or object close to them, the eye, being focussed upon that particular object, sees the environing objects in some degree softened, because they are out of focus. Now, although this is such a constantly occurring phenomenon, it has not always been recognised as a principle in art, although some of the best work of the old masters is realistic enough; still, up to within quite recent years, and even now, you see such sharp, clear, detailed work brought right up against strong foreground figures, that background, middle distance, and foreground all stick together in a bunch. If any one were to paint a landscape to some degree of finish, and then were to paint figures in, making them the subject of the picture, the landscape, which was before pleasing enough, would immediately look out of keeping. I will refer you to the best French figure work for instances of realistic painting. I think, in some cases, it is carried too far, perhaps, and the background is blurred and softened away into nothing to accentuate the foreground. Still, the principle is true, nevertheless.

Now, a good many photographers have a fatal gift in their figure pictures of keeping everything so sharp and clear that the secondary parts of the picture compete with the primary, and frequently the object which catches the eye first is something of no importance whatever, whilst the principal object has to be sought out. They seem to be afraid of having anything a little out of focus; yet when you look about you—say at a view—and regard it as a whole, you cannot see it all in focus. But people mostly look at nature bit by bit, and the focus of the eye constantly changes, so everything is kept sharp. But, remember, a picture is a small thing, and by standing at the right distance it is taken in by the eye as a whole, and I think a certain insistance on this law is necessary, both in landscape and figures, to produce really telling pictures—more, perhaps, in figure work, as foreground figures claim our attention more closely than any other foreground subjects, even if they be of the same strength.

There is another little matter I should like to mention, which perhaps will sound like treason to some of you, and that is that photographers, in making *pictures*, had better stick to motionless figures, or at any rate to figures in very quiet action, as photography is a very bad interpreter of motion. Some people think that photography is the only true interpreter of motion; still, we seldom see photographs of action that convey to the mind the idea that the figure is doing anything else than making absurd poses. Remember, art deals only with the appearance of things, and has little to do with what they really are. Instantaneous photographs, although they are right, are not of any artistic value other than by throwing, perhaps, a little light on the subject; still they never look right. When we look at a figure doing anything, we see in a flash the whole action; and in some cases no part of it, however carefully drawn or photographed, would perhaps clearly explain that action. Some actions when reproduced are never happy, and those that are so are suggested by choosing a certain portion of the action. This can but be the result of long study of the human figure. Look at this figure of "The Sower," by Millet. If you go on photographing through all time you will never equal it. The motion and actions in the figures of the old masters, however wonderful, can hardly be said to constitute the most interestingly or beautiful phase of art. Our modern figure painters, those, at any rate, who have treated the human figure in its most romantic and beautiful side, both clothed and nude, have been content to treat it in repose. Think of that beautiful figure of the man mowing in Walker's "Harbour of Refuge"—it is instinct with life. But notice he is right back, ready to swing round. You could not have got that go into the figure had you taken him in the midst of the swing. There is a wonderful sweep about mowing when you see the whole action, but it is suggested perfectly in art only in this one part, and that just before the action. So, too, in Millet's "Sower" you get a suggestion of motion rather than actual motion. The figure would not stalk so grandly and mysteriously across the ploughing if the time chosen was when one leg was either near to or passing the other. If you look at the work of Millet, Bastien Lepage, Frederick Walker, and many others, who have shown us such wonderful grace and beauty in the human figure, and that, too, in our every-day life, in people such as we may see walking along our streets, or striding across our fields at any time, you will notice that they have been most successful with the figure in repose. There is a feeling displayed of pride of power in those figures which sprawl and twist about the canvasses of many of the old painters, especially some of those of the last century, which is fatal to true art. Many photographs of figures in repose, especially when the figure is unconscious of being taken, are satisfactory in every way, and are true to works of art in every sense of the word.

With regard to posing of figures, that depends very largely on your own taste, and that of your model, too. I can say nothing about that. Most photographs of composed figure subjects that I have seen have rather an unnatural look, the figures are too self-conscious and stiff, the accessories showing signs of having been arranged. This, of course, is very difficult to get rid of, although it is constantly noticeable in the work of the clumsy painter; yet it is not seen in the work of the true artist, because he is working to an ideal, and he puts the life and soul into his posed models or arranged accessories, and makes them look right.

As far as portraiture is concerned, I can say nothing, it is so excellent. There certainly seems a lot of retouching done, too much sharpening of eyebrows and lashes, of dark touches and high lights, dotting of eyes till they look quite beady; but this, I fancy, is due to the bad taste of the public rather than to the photographer, as one is constantly coming across portraiture of the highest artistic excellence. Again, some destroy the delicate quality of their flesh by strong, dark shadows. The camera does not seem to see the delicate, transparent, reflected lights in the shadows that the artist does; still all this can be, and is, avoided by the man of taste.

And now I feel that I have come to the end of my wanderings, and will conclude by thanking you for the kind and patient hearing with which you have honoured me.—*North Middlesex Photographic Society.*

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Photography by Artificial Light—Intensifying Negatives—Transparencies of Various Colours—Cloud Effects—Collodion Emulsion.

Photography by Artificial Light.

A GERMAN patent office has recently sent round a note to the photographic journals, in which an intensely actinic light is described, which, as it is stated, has not been used for photographic purposes until now, when a French photographer constructs a very ingenious apparatus for burning the light, which consists of binoxide of nitrogen and bisulphide of carbon. Curiously enough the notice has been printed by all the journals, with one exception, without comment. Only the editor of the *Phot. Archiv* says, in mentioning the so-called "new" light: "This is a very old invention. Professor von Babo has taken photographs by the same light as far back as 1855, and in 1873 a patent was granted to M. Sell for a lamp specially constructed for this light. The reason that it has not been introduced in photographic practice lies in its dangerous nature." This is quite right, for it will be known that carbon disulphide, either in the form of a liquid or vapour, is exceedingly inflammable, and that a mixture of the vapour and atmospheric air forms a highly explosive compound. We can only warn our readers against the use of this source of light.

INTENSIFYING NEGATIVES.

A very useful method of intensifying negatives has been worked out by Herr C. Srna and Herr Ch. Scolik. The well-known uranium intensifier has, according to the authors, the drawback that the reddish-brown tone which it imparts to the negatives forms a hindrance to the passage of the light, and renders the retouching of the negatives difficult, because it deceives the eye; moreover, the density obtainable with it is not sufficient in many cases. The new intensifier, suggested by the above-mentioned experimenters, gives a green tone which is very agreeable to the eye, and which forms a very good printing colour. It is produced by treating the negative, after being intensified with uranium and whilst it is still wet from washing—which should be done well—with the so-called "blue intensifier," consisting of a mixture of the following two solutions:—

SOLUTION A.

Potassium ferricyanide	10 parts.
Distilled water	625 „

SOLUTION B.

Chloride of iron	10 parts.
Ammonium oxalate	2·5 „
Distilled water	625 „

The green tone imparted to the negative by this mixture will turn out the darker and the more opaque the more intense the reddish-brown colour has been which the negative acquired in the uranium intensifying solution. For very flat landscape negatives, and for line negatives, this new method of intensifying will answer specially well, though also very slight intensifications, as they are sometimes required by portrait negatives, may be successfully carried out with it. The same method may be advantageously employed if it is desired to produce transparencies on gelatino-bromide or gelatino-chloride plates in various colours. To obtain green tones the transparency is placed at first in the uranium bath, which should be prepared as follows:—

SOLUTION A.

Distilled water	100 c.c.
Uranium nitrate	1 gramme.

SOLUTION B.

Potassium ferricyanide	1 gramme.
Distilled water	100 c.c.

For use mix in the following order:—

Solution A.	100 c.c.
Acetic acid	20 c.c.
Solution B.	100 c.c.

It is allowed to remain in this bath until an intensely red tone is obtained, when it should be washed until all greasiness has disappeared, and placed finally in the above blue intensifier, in which it is allowed to remain only for a very short time. The colour varies between yellowish-green to blue and blackish-green, according to the time for which the transparency has remained in the uranium or blue intensifier.

CLOUD EFFECTS.

An original method of producing artificial clouds for the purpose of being photographed has been demonstrated before the Vienna Club of Amateur Photographers by Herr Anton Einsle. A drawing board was covered with white paper, and long pins without heads were fixed all over its surface at equal distances. The board was then slightly inclined backwards, and covered with large flakes of cotton wool. Across the upper edge of the board, towards the centre of it, the wires of a small incandescent lamp were laid imperceptibly. After darkening the room, the incandescent lamp was lighted, and most striking cloud effects resulted on the board. If the effects are photographed out of focus, very effective cloud negatives are obtained, which may be used for printing-in clouds into landscapes in the usual manner. The method has the advantage that the cloud effects may be varied according to the subject for which they are required.

COLLODION EMULSION.

A collodio-chloride emulsion, which may be poured on by one single coating, is described as follows by Herr E. Hirsch, in the *Deutsche Photographen-Zeitung*:—

SOLUTION A.

(*a.*) 14 grammes of silver nitrate are finely powdered in a mortar, together with 10 drops of distilled water; (*b.*) 840 c.c. of 3 per cent. collodion are added to (*a.*) by constant rubbing.

SOLUTION B.

Lithium chloride	2 grammes
Citric acid solution	2 „

Dissolved in 125 c.c. of alcohol.

Also this solution is added to solution A. by constant rubbing. Finally, 15 drops of glycerine and 15 drops of castor oil are added; the whole is violently shaken and filtered through cotton-wool. The following should be borne in mind:—The vessels and solutions should be hand-warm; the silver nitrate, and also the silver nitrate together with the collodion, should be well rubbed down. It will be well to rub down the collodion in smaller quantities with the pulpy silver nitrate, to allow to settle, to decant the clear liquid, then to add again fresh collodion, to rub down, to allow to settle, to decant, and so on, until the whole of the silver nitrate is incorporated with the collodion. The process may be carried on by lamp light, and the emulsion is poured on its support (glass or paper) in the well-known manner, in a warm and well ventilated room which is free from dust. The emulsion should not be kept for a long time.

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The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF
PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, MARCH 17, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is Issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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Subscriptions are now due for the ensuing year.

The Publishers request that the amount be remitted at once—all Subscriptions being payable in advance.

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Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

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FRESH FIELDS AND PASTURES NEW.

FOR a long time there has been a general cry that the business of the photographer is not so flourishing as it ought to be, and various suggestions have been made to account for the apathy displayed by the public in the matter of having their portraits taken. Some have blamed the want of permanence in the still popular silver print, others complain that the ubiquitous amateur has stolen away their business, and there are a few who blame the photographers themselves in not attaining in their work a higher standard, which shall satisfy the better knowledge which increased facilities for art education has enabled the present generation to acquire. We will not here enter into an examination of these alleged causes of decline in the business of photography, which may very possibly be to some extent true. But we must remember that when disappointment comes upon us, we are all too prone to assign a reason for it which is more often than not the wrong one. And it goes without saying that the difficulty is always ascribed to something which is far removed from our own control.

There is little doubt that many a photographic business, as well as many another commercial undertaking, has declined simply because those who control it refuse altogether to move with the times, in the firm belief that the methods of twenty or thirty years ago, under which everything seemed to flourish, are applicable to-day. The same wheel in the same rut represents the main idea of their creed, and they do not realise their mistake until too late. The public of to-day calls for novelty, and upon the things that satisfied a past generation it looks with disdainful eyes.

In the first number of the present volume, we described and illustrated a method of producing a number of medallion portraits upon one negative, so that the various members of a family might be depicted upon one surface. This method is known as Hemery's medallion group portrait system, and represents many advantages over the ordinary group, which so rarely represents a successful picture. Here, then, is a novelty which might certainly be tried as a means of tempting sitters to the studio, and we understand that several workers have found profit in adopting it.

We now venture to put forth another means which we feel very sure would lead in many cases to increased business, and this also has to do with family group portraiture. It has, moreover, the merit, which is naturally of first-class importance in the eyes of many workers, in not requiring the outlay of a single shilling in its adoption. The sole requisites are careful manipulation and patience. We allude to what is known as composite photographs—by which is understood the mingling on one negative of various individual portraits so as to form one type picture of the entire number.

Introduced some fifteen years ago by Galton to the notice of the British Association, this method of producing type photographs has remained a scientific curiosity and little more. A popular magazine revived the interest in it a short time ago by publishing composite portraits of leading politicians, but the general photographer has up to this time regarded it as unworthy of serious attention. And on the whole we may say that he has been wise in adopting this attitude, for very few of the general public comparatively knew until lately what a composite photograph was. But now things are different, and type photographs have become a matter of common knowledge. It was only the other day, for instance, that one of our leading statesmen suggested an analogy between the attitude of certain members of the opposite party and that kind of photograph known as a composite, and we may assume that he would not have ventured upon such a comparison had he not been sure that it would be well understood by his hearers.

Coming now to the practical side of the matter, what would the adoption of composite portraiture in the ordinary studio involve, and how can the idea be carried out? In the first place, the worker must issue an explanatory pamphlet, and show specimens of the work, consisting, first, of the individual members of a family; and, second, the composite picture obtained by their superposed images on the one negative. And here he will find something in his favour in the fact that the composite picture has invariably a better-looking countenance than any of the individual images of which it is made up. With regard to apparatus, nothing is needed but the drawing of three lines on the ground-glass screen of the camera, one vertical to mark the position of the nose, and two others to locate the eyes and mouth, respectively. We must also note that the usual studio chair must be discarded in favour of a music stool, or other support which can be raised or lowered so as to bring the features of each successive sitter to exactly the same height. With these simple arrangements the photographer will be ready to make his first composite photograph, and his trial picture will naturally be on members of his own family.

Let us suppose that the normal exposure for an ordinary portrait with the plate which he uses is four seconds, and that the composite photograph which he is about to produce is to be made up of eight constituents. It is obvious that each sitter will require an exposure of only half a second for his contribution to the image which is being gradually built up on the sensitive plate. After this first sitter comes the next, whose image must be carefully focussed so that eyes and nose are cut by the lines in the ground glass, and the same plate-holder is again inserted in the camera, and another half-second exposure is given. And so on until the entire eight members of the family have contributed their share to the negative. It will thus be seen that there is no great difficulty involved in the work, and as it costs nothing, it may be worth a trial by those who are not afraid to try a new departure.

* * *

The great work of photographing the heavens, in connection with the chart decided upon at the International Congress, has revealed a curious fact. Dr. Gill and Professor Kapteyn, who have been engaged at the Cape Observatory in measuring the photographs of the stars taken for this purpose, have discovered that the stars in or near the Milky Way are photographically brighter than stars of the same visual magnitude situated at a greater distance away. The difference has been mathematically fixed.

ON THE TONING OF SOLIO PAPER.

BY J. J. B. WELLINGTON.

I HAVE thought that, instead of giving you a paper on the combined toning and fixing, it would be preferable to give you a few hints on the general toning of solio paper, in the manufacture of which I am personally interested.

We have now arrived at that point where the new printing-out paper is no longer in the experimental stage. It is largely used by the best photographers, both here and in America, and all speak in glowing terms of its superiority over albumen. This dear old friend albumen has had its death-bell tolled many a time before—certainly it has been the case every year during the last ten years—and yet it has lingered on, dying hard at the last. I think every one must see around them that albumen is giving place not only to the new printing-out papers, which must resemble it in appearance, but also to platinotype, bromide, and kindred processes.

As this is to be a practical paper, I do not intend to dwell too much upon the *pros* and *cons* of the process. With this paper we have the greatest range of tones that the most fastidious can desire. Of course, as with albumen, it is of the first importance to have a good negative. Having secured this, it is easy to secure a good print; but there is no doubt that with the new printing-out paper there is a far greater range to be obtained than with any other process. We have also at our command the capability of giving to our prints either a glazed or dead matt appearance with but very little trouble.

On the question of permanency, there can be no doubt there is a greater chance of achieving this than with albumen, which we all know is so liable to go wrong; but to attain this, as with all photographic manipulations, it is necessary that due care be exercised with the various stages through which the print has of necessity to go. To say that a solio print is absolutely permanent would be taking a great responsibility upon myself, for in this mortal world of ours anything on paper could not be so; however, I will say we can obtain a reasonably permanent result. The fading of prints is, I believe, more often caused through unsuitable mounts and bad mountants than through any inherent defects in the prints themselves.

As with all new processes, it is necessary that we take some trouble to understand the little peculiarities incidental to its working; and, when these are once mastered, you will be surprised at the simplicity of the whole thing. In the printing paper before us we have chloride of silver, in conjunction with a definite organic salt of silver, held in suspension in a vehicle composed mainly of gelatine, and this is coated on a paper with a baryta surface, which prevents its sinking into the fibres of the paper, and we have a more brilliant print, and the elimination of the hypo is more easily effected. To get even prints, and to prevent uneven toning, it is absolutely necessary that the paper should not be allowed to become damp before printing, and, when separate toning and fixing baths are employed, care should be taken that the hands are not contaminated with hypo during the preliminary washing and toning, otherwise red stains will inevitably be the result.

As this paper is peculiarly susceptible to a diffused light, great care should be exercised in handling it in a very subdued light, both before insertion in the printing frame and during examination of the print, otherwise the high lights and purity of the resulting picture will soon be destroyed. It is not necessary to carry the prints to such a depth in printing as is the custom with albumenised paper, as the loss is not so great in the subsequent toning and fixing.

Now we come to the all-important question of toning. What bath shall we use? I think the first to engage our attention is the combined toning and fixing, about which there is such a divided opinion as to the permanency of the prints produced from it. There certainly is a distinct charm in the use of a combined toning and fixing bath, especially as no previous washing is required, the prints being taken direct from the printing frames and immersed in the one solution. There are amateurs who do not, and will not, use separate fixing and toning baths when there is one to be had that will do everything that is required in one bath. As long as too many prints are not toned in one bath, there is no danger of less permanency than with any other bath; but, if the gold is exhausted, the toning proceeds with the lead, and probably sulphur also, in which case the prints *may* possibly change, but I do not think they would fade. The chances are they may become darker, especially should there be any sulphur in the atmosphere, and I fancy there is a good deal in London. This will probably attack the lead, and form sulphide of lead. The opinion of any chemist here to-night on this matter would oblige. I have prints here which have been standing about on the mantelpiece of my sitting-room for over six months, and show no signs whatever of any change.

The formula recommended by the Eastman Company is as follows:—

STOCK SOLUTION NO. 1.

Hypo	6 ounces.
Potash alum	1½ ,,
Sodium sulphate (Glauber's salts)	4 ,,
Water, make up to	60 ,,

First dissolve the hypo and alum in the water, then add the sodium sulphate.

STOCK SOLUTION NO. 2.

Gold chloride	15 grains.
Acetate of lead (sugar of lead)	50 ,,
Water	7½ ounces.

NOTE.—An orange precipitate is formed in No. 2 solution, which, however, redissolves on its being added to the No. 1 solution.

To form a combined bath take of—

Stock solution No. 1	8 ounces.
Stock solution No. 2	1 ounce.

Do not use until the mixture has become quite clear.

In all solutions composed of hypo and alum it will be found that there is always a slight white precipitate. This, however, does not interfere with toning. This bath is very useful indeed for giving soft prints from hard negatives. It is not advisable to attempt to produce purple or black tones with this bath.

For those who prefer a separate toning and fixing bath, and one that will produce warm black tones, there is nothing better than the sulpho-cyanide bath. In order to have this bath under greater control, the addition of acetate of soda is of very great advantage; not only does it slow down the toning action, but the prints are not so liable to take that very objectionable blue surface tint which sulphocyanide, *per se*, is so apt to produce; the tones of the prints can be more closely watched. Where possible, it is certainly better to tone by daylight rather than by artificial, as with the latter it is far more difficult to watch the various changes of tone. Of course it must be done in very subdued light. As I said before, no hypo must come anywhere near the prints during the toning, otherwise the prints will be irretrievably ruined with red stains that will refuse to tone.

Owing to the softening action of sulphocyanide on the prints, they should be washed in two changes of water, and then passed through a bath of alum water (alum half an ounce, water twenty ounces). After this they should be well washed in three changes of water, and then placed in the toning bath, as follows:—

STOCK SOLUTION A.

Sodium acetate	600 grains.
Water	20 ounces.
Gold chloride	15 grains.

STOCK SOLUTION B.

Ammonia sulphocyanide	50 grains.
Water	20 ounces.

For use, take of A two ounces, B two ounces, water four ounces. Allow to stand one hour before using.

The toning may be stopped at any stage by immersion in a bath of salt:—

Common salt	1 ounce.
Water	32 ounces.

Moving.

For securing still greater control and regularity of toning, it is advantageous to use two-thirds of an old bath and one-third of a new one, omitting the water.

After removal from the salt bath, the prints should then be transferred to the fixing bath. This should not be made too strong.

FIXING BATH.

Sodium hyposulphite	3 ounces.
Sodium sulphite	1½ ,,
Water	20 ,,

The addition of sulphite is to preserve the purity of the tones.

There are some amateurs, in contradistinction to those who will have the greatest simplicity, who prefer formulæ of the greatest complication (take, for instance, some of the developing formulæ published), and it is for these that I bring forward the following not too complicated method of toning, in two toning baths, the second being a toning and fixing combined.

First tone very slightly indeed to a light brown in the following (the prints having been previously washed, as usual):—

Potassium chloro-platinite	5 grains.
Sodium chloride	40 ,,
Citric acid	40 ,,
Water	20 ounces,

and immediately transfer direct to the combined toning and fixing bath as first mentioned in my paper until the desired tone is obtained. This produces tones of a rich, warm black ; but, if purple tones are desired, tone first in the sulphocyanide, and then follow with the combined bath. Certainly the tones produced by it are very fine.

Where prints are desired of a nice sepia, tone a little deeper in the platinum bath, and fix as usual in the ordinary way. Care must be taken not to go beyond the brown stage. Prints produced in this platinum bath only are best finished off with a matt surface. As my paper is intended to be devoted to toning only, I will leave the subject of finishing, &c., to some other member to take up.—*Photographic Club.*

LANTERN SCREENS.

BY CHAS. A. PARKER.

II.—The Preparation of Linen or Calico Screens.

(*Concluded from page* 157.)

WHEN the screen has been prepared in the manner before described it will be ready for use at any moment. If the operator intends to hang the screen without the aid of a stand, it will be necessary to first pass a strong cord or rope through the hem at the top of the sheet, and then bind the two ends of the cord securely together in the form of a couple of loops, each of which should be fastened to the outer corners of the sheet in order that they may tightly strain the latter when the cords are tightened. The operator, having selected a suitable position, should now drive a couple of moderately large screw-eyes into the cornice or roof of the lecture room, at a distance apart suitable to the width of the screen, after which a couple of similar screw-eyes may be driven into the floor immediately below the first named. The screen may now be suspended by means of a couple of suitable lengths of strong cord, each of which must be provided with a small galvanised hook which is securely spliced to one end of the cord. These cords are now passed through the screw-eyes attached to the upper part of the room, and are then hooked into the rope loops at the top of the screen, thus enabling the operator to readily raise the screen to the desired height by the aid of the before-mentioned cords, which are finally passed through the eyes affixed to the floor and securely tied in position. The sides of the screen may now be pulled quite taut by means of another length of cord, which is brought from the loop at the top, and alternately passed round the sustaining cord and the hooks attached to the sides of the screen, after which the lower end of the cord is brought from the bottom corner of the screen and tied to the screw-eye attached to the floor. The operator should always arrange to have the screen erected at such a height as may bring the lower portion on a level with the heads of the audience when seated, and, if needful, the cords which pass through the hem at the top may be propped up by means of a pole on either side.

Besides the above plan there are one or two other methods of hanging a lantern screen, some of which may be said to be good and others bad ; but this is a matter in which the operator cannot be bound by any hard-and-fast rule, and must almost invariably be governed by existing circumstances. It is sometimes convenient to tack the top hem of the screen to a batten, which has previously been fixed to the wall at a suitable height from the floor, so that the bottom may be attached in a like manner to a wooden roller, which will allow the screen to be rolled up similar to the act-drop of a theatre. In the event of the screen being mounted in this manner, it will be needful for the raising cords to be wound round either end of the roller, and then passed through a couple of screw-eyes attached to the top batten, or a couple of suitable pulleys attached to the same, the ends of the cords being joined together and allowed to hang down at the right-hand side of the screen. A great many lanternists prefer to mount the screen upon one of the many portable stands such as are to be obtained from all dealers in lantern requisites. The most convenient form of portable stand is the ordinary jointed one, in which a number of stout ash poles of a uniform size are joined together by being fitted into strong metal sockets, something after the fashion of a fishing-rod, in order to form four poles of the required length, which are afterwards fitted together at the corners by means of strong angle sockets. The lower part of the frame is mounted upon a couple of solid wooden feet, which are placed at a cross-angle to the frame itself, and thus afford the necessary support to the latter when erected, the whole being steadied by means of guy ropes, which are brought from the top corners of the frame, and either attached to the outer corners of the supporting feet, or else to small screw-eyes driven into the floor in a suitable position to afford the required support. It will be found very useful for the sheet to be provided with a broad hem at the top, so that the pole of the frame may be passed through it when the stand is fitted together, the three remaining sides being furnished with short lengths of tape, which may be securely tied to the side poles in bow knots, so that they may be readily untied again when required. As the guy ropes will have to bear a great strain when it becomes needful to tilt the screen, it will be necessary to employ the best quality hempen rope for the purpose, or if the stand should be very large, it would be wiser to use seven-wire galvanised wire rope, as sold for fencing, or preferable to this, some of the best piano wire picture line, which possesses very great strength and is moderate in price. In folding a linen or calico screen, it will be best to take all the long folds across the width and afterwards fold it over short ; and if it is likely to travel about much, it will be well to make a waterproof containing case out of a suitable length of American leather cloth, which may be fastened together by means of tapes.

PHOTOGRAPHING THE "VESUVIUS" SHELLS.

As for the photographer, he knows that after waiting perhaps an hour for his opportunity it will last at most no more than one-ninth of a second when it does come. In that brief space of time he must think and act quickly if he hopes to work the shutter while the projectile is in the field. No wonder he becomes anxious and snaps off before the sitter has arrived through fear of being too late; or, overcome with a sort of buck fever at the sight of the on-coming, whistling, black cylinder, he lets the instant pass unfruitful. This may explain why in many opportunities so few good shots are obtained. Even when the observer feels that he has been successful it not infrequently occurs that the ugly-looking smudge so highly prized will not show up in the development. In one instance, strange to say, a stately three-masted schooner came out just where he would have sworn an 8 ft. projectile should have been. The projectile had probably passed before the exposure was made, and a fair picture was taken of an unobserved schooner on the opposite side of the river.

Still, there are advantages in this style of photography, the projectile cannot complain, and those most interested in its behaviour and appearance at the instant of impact care little for cloud effects or detail. What they want is the angle of inclination of the axis of the projectile. That angle is the main condition upon which depends the method of exploding the shell. Should the projectile maintain its original inclination as when discharged from the gun, the centre of gravity merely following the trajectory, it is apparent that a very different fuse would be required from the one needed when it strikes nose first. Again, should the projectile strike at too slight an inclination a nose percussion fuse could not be depended upon.

The Importance of this Work.

The length of dangerous space in which the projectile rushes through or skips over the water after impact and before it comes to rest is also affected by the inclination of the axis of the projectile. In fact, all the data that can be obtained as to the behaviour of the projectile throughout its flight arc of importance to those who have to decide upon its merits and defects.

So long as the regularity of flight had not been demonstrated it was necessary to take precautions to avoid a possible erratic shot. The camera was therefore mounted a short distance from the line of flight at the end of the range, the observer taking his place 500 feet further back. The shutter exposing the plate was worked by means of an electro-magnet which tripped the detaining trigger upon the observer completing an electric circuit. Later it was found that the projectiles, as a rule, held their line of flight very closely, the only deviations being in the range, and as a consequence the electrical outfit was discarded, and the observer moved up to within sixty yards of the line of flight, anchoring in a launch opposite the different ranges.

The projectile moves over a horizontal space of one sea mile, or six thousand feet, in about eleven seconds. The actual distance travelled over the lofty trajectory is much more, so that its velocity at the end of flight is presumably about six hundred feet a second, or about sixteen times as fast as Nancy Hanks breaking the record. To photograph an object eight feet long and ten inches in diameter, moving at this speed, is no extraordinary achievement, providing one knows where the object will be at a certain time. It is then merely a matter of speed of shutter and sensitiveness of plate. Dealing in such small spaces of time as one-ninth of a second, however, it is necessary to consider the time taken by the shutter to obey the impulse of the spring after the circuit of the electro-magnet is made or the pneumatic bulb is pressed.

Lieutenant Knight's Plan.

An ingenious method of doing this was suggested by Lieutenant Austin M. Knight, one of the most expert photographers in the Navy, who has devised several apparatus for photographing minute defects in inaccessible parts of the bores of high-power rifles. His plan was to drop a ball from aloft, having the camera focussed so as to cover the path. At the instant the ball reached a certain point the shutter was worked. The plate was then developed and the ball was found to be some distance below the marked point. The difference between the time required to fall from the starting point to the two other positions was, of course, the time required to start the shutter. Knowing the distances, this was easily worked out by the law of falling bodies.

Small bullets have been photographed flying at three times the speed of the dynamite projectiles, and Major Randolph, of the Fifth Artillery, succeeded in obtaining excellent views of the dynamite projectile as it was leaving the muzzle of the gun. The first case was by far the easiest. The bullet was made to pierce tinfoil electrodes of a Leyden jar in such a manner to produce a spark of sufficient intensity to photograph the bullet on the plate of a camera focussed on that point.

In all such cases, however, the exact position of the projectile at a certain instant was known, and it was necessary only to focus the camera on that point, determine the time required to release the shutter, and, by easily-devised mechanical arrangements, the gun might be discharged and the shutter actuated at the same instant.—*New York Herald.*

CORRESPONDENCE.

MR. PRINGLE AND THE "SANDELL" PLATES.

Sir,—I shall be glad if you can find space for what must constitute my reply to Mr. Andrew Pringle's opinions on the "Sandell" plates, as published in the *Camera Club Journal* of December last, and which I should have dealt with earlier but for a prolonged absence from home. These opinions, emphatic as they were (I am advised from several quarters), have tended to do the interests of the plates considerable harm; but I should be first to admit that this result was altogether foreign to Mr. Pringle's intention. The experiments spoken of, although expressly described as of quasi-scientific character, have been regarded as having special interest for the practical worker, and, therefore, the necessity for my pointing out wherein I consider they are at fault.

To fully discuss all the points involved in Mr. Pringle's arguments would require a lengthy dissertation on photographic theories and practice, and a too great intrusion on your space, so I will endeavour to take the vital points only. Mr. Pringle seems certainly to fail to grasp the capabilities of the plates, and were he an authority of lesser calibre I should be tempted to say there was a failure in his appreciation of the potentialities of the single sensitive film.

Speaking of the photography of an interior, he says: "If the exposure be only long enough to affect the upper film, the result is in no way different from that on an ordinary plate." This reminds me that it would be more convenient if it was made manifest from the commencement that the position I take up regarding the plates is this: I assert, and challenge the contrary proof, that the plates are an absolute cure for halation from support reflection, in all practical photography, and that their latitude in exposure is practically unlimited. Reverting to the interior, I submit that an exposure should not be quoted unless accompanied by the development given to render obvious the work done in the film or films during the exposure. Now, this is a most important item in considering the utility of the new plates. Can Mr. Pringle imagine an exposure on any interior with a clear glass window, admitting direct skylight, where the inside details are even poorly rendered on the single film, where the light from window has not gone through and through the film? He must have surely forgotten that halation is not unknown in snap-shot work. Mr. Pringle remarks in one place he was surprised how little light passed through the single film; it has been a matter of surprise to myself how much passes the film. On more than one occasion have I, in trying the experiment of stripping off the top film, found a printable image of the highest lights of a snap-shot developed in the second film. It may be remembered that the finer emulsion of the latter is more amenable to development than the more sensitive one, and the image formed, although apparently having a similar density, has a better printing value. To these qualities I attribute the characteristic softness of the prints from all exposures on the plate. Mr. Pringle also asserts that two or three times the exposure of an ordinary plate produces a failure with the "Sandell" plate; but, if the higher lights of the snap-shot have so penetrated the plate, how much more so will the exposures in question? I can quite understand his failures in this case if he relied on the preposterous operation (for practical work) of stripping or a total clearing away the upper image. But I think I can demonstrate that for this, and even a greater increase on the normal exposure, the image-forming capacity of the lower film is not a necessity, and, leaving out of consideration latitude obtainable by developer modification, Mr. Pringle seems to ignore the constitution of the ordinary film, and treats of it as if it were a single molecule of silver haloid; but I am sure on reflection he will agree with me that the latitude of the ordinary plate is really due to the superposition of many molecules, and also that only the molecules to a certain depth can be utilised effectively for the image formation, the remainder being simply serviceable as a screen. If development be pushed into this screen, the result is halation. Now, in the multiple plate, the whole of these molecules can be used up to the last line, and this, I maintain, will admit of a greater increase in exposure than that which caused failures in Mr. Pringle's experiments.

Then, as to Mr. Pringle's joke (for surely it was such), when he spoke of the plates making him miserable, he said: "I do not think they are of any real value unless you give them enormous over-exposure." This is very comical, and smacks much more of a desk emanation than a dark-room one; their latitude for prolonged development would seem to indicate superior advantages for the quickest exposures, as well as for the longest, and I can assure Mr. Pringle that he is mistaken in fancying that any intermediate exposure between maximum and minimum necessarily yields a failure; the amount of exposure to be given, above the minimum allowable, by an experienced worker depends entirely upon his own tastes as to how much of his shadows he wishes to render. There is no occasion for the merest tyro to consult an exposure machine.

Before I close, I must express my surprise that Mr. Pringle could have been informed that half second $f/64$ under trees was the correct exposure for the plates. His informant could scarcely have consulted the prospectus sent with each box. In this he is directed to give the exposure of our table for the Cyclist plate as a minimum. This under trees would be four minutes sixteen seconds; and for landscape, with heavy foliage, three seconds. I do remember making the first of a series of experimental exposures with Mr. Pringle, and giving half second on heavy foliage, but I assure him he is mistaken if he understood me to suggest that I considered this sufficient; I did it simply to show the amount of reduction that could be effected in the film as a result of this short exposure.

Thornton Heath, March 11th, 1893. J. T. Sandell.

RIVAL AMIDOLS.

Sir,—Our attention having been called to a statement in the March issue of the *Practical Photographer* to the effect that "the difference between the rival amidols had been settled," we beg to inform you that that statement is erroneous, and that, so far from the difference being settled, the same is now the subject of litigation, we having commenced proceedings for infringement of the amidol patent which Mr. Hauff owns, for whom we first introduced it in this country.

This being so, we of course refrain from comment until the points at issue have been decided by the judge.

We hope you will give this letter publicity, as the statement referred to above is calculated to injure us in our business. Fuerst Bros.

STATUESQUE PHOTOGRAPHY.

Sir,—There appears to be a controversy anent the best means of producing this beautiful class of photography which bids fair to become so popular. Since seeing productions by the old method and that lately patented by G. B. Bradshaw & Co., of Altrincham, I have given the two methods a fair trial and quickly became convinced that the old method was not practicable, inasmuch it took so much time up to arrange the sitter. I was much more satisfied with G. B. Bradshaw and Co.'s process, which appears to be all that can be desired. I am quite charmed with my results, and I would like to hear the opinion of others, after testing, on the same subject.

Would Messrs. Bradshaw state when they propose to issue licences to work their patent? Incog.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

4,348. ANDREW WYBRANT, trading as Penrose & Co., 5, Amwell Street, London, "Improved Copying Camera for Photo-Mechanical Work."—*28th February*, 1893.

4,377. ALBERT BARBER PARVIN, 323, High Holborn, London, "Improvements in Photographic Objectives."—*28th February*, 1893.

4,520. ALFRED JULIUS BAULT, 323, High Holborn, London, "Improvements in or relating to Photographic Processes." (William John Henry Anton, France.)—*1st March*, 1893.

4,672. CHARLES FERDINAND VEIT, 6, Breams Buildings, Chancery Lane, London, "Improvements in Apparatus for Exhibiting Photographs, Pictures, Advertisements, and the like."—*3rd March*, 1893.

4,692. PAUL RUDOLPH, 47, Lincoln's Inn Fields, London, "Improvements in Photographic Objectives."—*3rd March*, 1893.

PROCEEDINGS OF SOCIETIES.

THE PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

AN unusually large number of members attended the meeting on Wednesday last, attracted by the promise of a paper on "Naturalistic Photography," by Dr. Emerson. In consequence of a domestic bereavement, Dr. Emerson was unfortunately unable to be present, and the paper was read by Mr. DALLMEYER, who at the outset apologised for all possible shortcomings on the ground that the MS. had only been put into his hands an hour or two before the meeting, and that its caligraphy was not of the clearest character. Dr. Emerson's paper covers such a vast field that it is quite impossible to give anything like a complete review of it at such short notice. It first of all refers to his well-known volume on "Naturalistic Photography," and then to his recantation of certain views put forward in that work, and gives the reason for that recantation. But although we have an acknowledgment of error, Dr. Emerson in the main sticks to his guns most manfully, and draws a very rigid boundary between art and photography. Art, he tells us, is a cross between man and nature, and photography is one between nature and a machine, and he illustrated this portion of his remarks with genealogical diagrams which certainly were the source of great amusement to the audience, if they did not carry conviction with them. The paper concluded with a number of propositions which were principally of a psychological character, but in the last of these Dr. Emerson advises photographers to drop the use of the word art or artist, and he commends to the notice of the Society a suggestion to classify the pictures at the next exhibition at Pall Mall under two heads—(1) Decorative Photography, and (2) Scientific Photography.

The discussion which followed the paper was a desultory one, and the general feeling of the meeting was perhaps best expressed by Mr. PRINGLE when he said that he was content to regard Dr. Emerson's paper from the standpoint of "Omne ignotum pro magnifico." There was, indeed, a good deal of the unknown in the paper, and even Mr. LAMBERT was constrained to say that it required three months for proper digestion. But in one respect all were agreed, and that was in feeling satisfaction at the re-appearance of Dr. Emerson as an exponent of views of photographic interest. It was also generally conceded that his good influence upon the more artistic side of photography had been very great indeed, and that photographers, therefore, owed him a heavy debt of gratitude.

The meeting concluded with an expression of sympathy with Dr. Emerson in the sad cause of his absence.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

March 9th.—Mr. WEIR BROWN in the Chair.

MR. J. TRAILL TAYLOR read a paper on "Spirit Photography so called, and the Photography of the Invisible," illustrated by a number of lantern slides from negatives taken by himself at a recent *séance*. A few slides also from French photographs of similar character were also shown, but in these there was not the same appearance of paper grain and cut-out line round the "spirit" part of the photograph that was evident in Mr. Taylor's examples.

Mr. W. DOWNEY inquired how it was to be accounted for that Mr. Taylor's photographs were so bad, and whether he really believed that there was such a thing as spirit photography.

Mr. TAYLOR replied that that was outside the subject.

Mr. P. EVERITT inquired whether the room was of Mr. Taylor's own selection.

Mr. GLENDINNING, at whose house the photographs were taken, said that a well-known photographer, whose name he mentioned, had intended to be present, but withdrew from some religious scruples. The question for the members was this, Was Mr. Taylor competent for the investigation that he recently undertook, and were his statements to be depended upon? His own strong conviction was that Mr. Taylor was both competent and reliable.

Mr. W. E. DEBENHAM inquired whether Mr. Glendinning would assent to a small committee of such men as Messrs. Haddon, Bolas, Cowan, and Bridge being afforded an opportunity similar to that given to Mr. Taylor.

Mr. TAYLOR replied that any who desired to investigate could do so by paying a medium for the purpose.

Mr. GLENDINNING stated that he had never had anything to do with paid or professional mediums, but that the medium concerned in the present case was now in Scotland, and would not be in London again probably till Christmas. Asked whether he would then afford the opportunity proposed, he was understood to assent.

Mr. F. A. BRIDGE said he thought there was no doubt that the examples shown as spirits by Mr. Taylor were cut-out photographs. As to how they had been introduced on to the plate he would offer no opinion.

Mr. DOWNEY said that no doubt it was a clever trick whoever did it.

Mr. A. COWAN said it was often said that manifestation did not occur if disbelievers were present. He called to mind an instance in which a gentleman asked him to accompany him to Hudson's place. He (Mr. Cowan) took with him marked plates which he saw coated and developed. Nothing abnormal appeared on the first plate; but the gentleman wished further trials made, paying half a guinea a time to Hudson. At the sixth attempt a dark mark was visible where Hudson had forcibly poured on the developer, and this was accepted as something occult. He noticed a peculiar pattern on the drapery of several of Hudson's spirits, and this corresponded with the pattern of a table-cloth he saw in use there.

Mr. **Everitt** said that Mr. Taylor had mentioned the photographic effect of the ultra-violet rays. Would it not have been possible for an image, invisible to him, to be projected on the plate and so produce the appearances shown?

Mr. **Haddon** said that in Mr. Taylor's paper there was a suggestion as to the possibility of perception of ultra-violet rays by some seers, which might explain what had been a mystery. Mr. Friese Greene showed photographs alleged to have been produced by emanation from his own eye, after looking at a powerful light. So far as he was aware no one had been able to reproduce Mr. Friese Greene's experiment.

Mr. **Taylor** said that the odds would be millions to one against the plates which he used having had images impressed on them by the manufacturer on the chance of their coming into his hands for the purpose for which they had been used.

Mr. **Everitt** would suggest, in any fresh trial, having a mirror behind the sitter, so that a back as well as a front view should be obtained. We only see the front surface, but if the spirit form is partially transparent, we ought to see see the back through the front.

Mr. **Taylor**, in reply to a question, said that he did not recognise any of the photographs as portraits.

Mr. **Shorter** said that many of Hudson's spirit photographs had been distinctly recognised as portraits.

Mr. A. **Mackie** said that as for recognition of portraits, that could easily be accounted for if the originals had been long deceased. When some years since he had been connected with a photographic business, it was noticed that, if an enlargement or painting had to be made from a defective portrait recently taken, there would be a difficulty about the likeness; but if some years had elapsed, the portrait was accepted as satisfactory and the likeness was found to grow upon the survivors.

The **Chairman** said that he had come to the meeting with an open mind. They had only to do with Mr. Taylor's pictures, and these bore evidence of being patchwork on the plate. Mr. Taylor had not detected anything to explain the mystery. It would help if Mr. Glendinning would accede to the suggestion made as to a small committee.

Mr. **Glendinning** had no doubt that the medium would adopt any suggestion that came from Mr. Taylor. Mr. Taylor had said that the ghost negatives were not impressed at the same time as the living sitter; but he, Mr. Glendinning, thought they were.

South London Photographic Society.

Ordinary Meeting, March 6th, at Hanover Hall, Peckham.—The **President** (Mr. F. W. Edwards) in the Chair.

After the transaction of the formal business and the discussion of the Affiliation Scheme (which was adjourned to the annual meeting), Mr. **Leon Warnerke** demonstrated his method of printing, developing, and toning gelatino-chloride papers. He said his process was somewhat similar to that used in 1848 for the preparation of waxed paper negatives before gelatine plates were invented. While staying last winter in St. Petersburg, he had to contend against an almost entire absence of light in carrying on photographic work. This led him to make certain experiments with Ilford printing-out paper, Eastman's Solio, and Liesegang's Aristotype papers, exposing them for a short time, and then developing with gallic acid. The exposure of the paper could be made at night, using magnesium ribbon. He considered "Solio" paper the best suited for the process. If daylight was used, the paper could be exposed until the image was just visible or until it was completely printed out. Good results could be obtained either way. With a short exposure development took a longer time. He then exposed a piece of Solio paper by burning about two feet of magnesium ribbon in front of the negative. On examination a faint image was found on the paper. He gave the following formula for development:—

Water	1000 parts.
Acetic acid	10 „
Acetate of soda	10 „
Gallic acid	5 „

When dissolved, 10 parts of a 10 per cent. solution of acetate of lead, after filtering, were added to the above. For development 1 part of the solution to 5 to 10 parts of water were used. The print, on being placed in the developer, gained in detail and density, as if printed out in the ordinary manner. It was then placed in a dish of water, to which a pinch of table salt had been added to stop the action of the developer. The print was then placed in a combined toning and fixing bath composed of

Water	1000 parts.
Hyposulphite of soda	100 „
Acetate of lead	10 „
Chloride of gold, 1 per cent. solution	20 „

Uniformity of tone was very easily obtained. Toning could be stopped at any stage thought desirable. It was impossible to distinguish prints developed by this process from those printed, toned, and completed in the usual manner. The lecturer believed that the prints would be more permanent than those prepared by the ordinary methods. In reply to questions, he said a beautiful sepia tone could be obtained by using a platinum toning bath. A weak negative required a more concentrated developer, and a hard negative a dilute one to obtain good results. He did not advise the use of separate toning and fixing baths. Lead acetate kept the whites clear, and did not affect the permanency of the prints.

Hackney Photographic Society.

Ordinary Meeting, Tuesday, March 7th.—Mr. S. H. **Barton** in the Chair.

Nomination read of Mr. B. K. Gillon.

The library was augmented by about a dozen more new books.

Mr. J. O. **Grant** recommended that the Society exhibits at the forthcoming Crystal Palace Exhibition; and, after it was carried, he said the committee would draw up and send a circular to all members.

Mr. **Beckett** stated the Committee had decided on purchasing two 9-inch lenses by Swift for the new lantern.

Mr. **Houghton** presented the Society with a new form of carrier for the lantern.

Members' work was then shown by Messrs. **Cross**, **Sodeau** (*Arachnidus ornatus*, photo-micrograph), **Hudson** (lantern slides), and **Roder** (two slides developed with amidol.)

Mr. **Gosling** asked how many sheets of tissue paper were necessary to reduce or enlarge by diffusion of light in sunlight.

It was stated that it would depend on light; in any case, the paper must be put out of focus.

Mr. **Brooker** (of Hastings) then gave a first-rate lecture on Winchelsea and Rye, illustrated by the lantern. Much care had been bestowed by Mr. Brooker on it, as it was very instructing and interesting to all, and that the slides were good goes without saying; whilst the scientific side was treated upon, likewise the historic, the art side of photography was certainly to the fore, and a great treat was given to the Society. Mr. Brooker must be complimented on the fine quality of his slides.

Arrangements for March and April.—March 21st, demonstration of the Sandell plate, by S. Herbert Fry; 28th, "London Street Cries," by E. Scamell. April 4th, "Photogravure," by A. Dawson; 11th, Members' lantern night; 18th, "Record and Survey," by W. Jerome Harrison; 25th, "The Afterwork of Hand Cameras," by A. R. Dresser.

Richmond Camerra Club.

March 20th.—Demonstration on printing, toning, and developing gelatino chloride paper, by Mr. Gotz.

Liverpool Amateur Photographic Association.

On Thursday evening Mr. J. Sheard (a member of the Association) delivered his new lecture on "Our Members of Parliament, and something abont some of them," illustrated by lime-light portraits of present members of the House of Commons.

The lecturer dealt, in a racy manner, with the personal reminiscences and peculiarities of about fifty members, and exhibited about 300 portraits, together with a reproduction of a number of life-like silhouettes. Mr. G. B. Newton presided, and, at the close of the lecture, a cordial vote of thanks was, on the motion of Mr. J. Sirett Brown, accorded to Mr. Sheard.

Sheffield Photographic Society.

The ordinary monthly meeting of the above Society was held at the Masonic Hall, Tuesday evening, March 7th, as a musical evening. Mr. B. J. Taylor in the Chair.

After a few remarks from the Chairman of the advantages, instructive and otherwise, of photography, a very enjoyable programme was gone through; songs and recitations, &c., by local artists, viz., Messrs. Callum, Brooks, Gadsby, Wild, and Miss Doris Taylor; also a series of lantern slides were exhibited, consisting of landscapes, seascapes, local, and other views, the lantern being operated by Mr. Ernest Beck in his usual efficient manner. The meeting was brought to a close by votes of thanks to the gentlemen who so kindly contributed to the evening's enjoyment.

Leicester and Leicestershire Photographic Society

At the regular meeting of the above Society, on the 8th inst., in the Old Town Hall, the President (Mr. J. Porrett) in the chair, two members were elected and three proposed. The details of arrangements for the forthcoming exhibition of the Society on the 22nd and 23rd inst. were considered, the hanging committee elected, the excursion committee also arranged, and various matters in connection with the exhibition received attention.

After the bnsiness had been concluded, the President (Mr. J. Porrett), exhibited in operation, a useful and economically made enlarging apparatus for enlarging ¼, ½, and 1/1 negatives up to 15 by 12, which quite engaged the attention of the members present, and an enlargement ¼ to 15 by 12, by magnesium, was successfully completed with this apparatus.

Rotherham Photographic Society.

Monthly Meeting, March 7th.—Dr. Baldwin (President) in the Chair.

Three new members were elected. The President and Hon. Sec. (Mr. Hemmingway) were appointed delegates to the Photographic Society of Great Britain (under the Affiliation of Societies Scheme). The competition slides of the *Hand Camera and Lantern Review* were displayed. A good deal of useful criticism resulted.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

J. S. H.—(1) We think that there would certainly be a demand for the goods described; but your friend must remember that the difficulty has already been met, and to a great extent the ground which he would wish to till is forestalled. (2) Your friend would do best to put himself in communication with one of our plate-makers. We cannot answer this part of your query ourselves. It is evident that no good firm would alter its methods without very distinct promise of gain in quality of manufacture.

G. G. B.—We are under the belief that comparatively few understand the method to which you refer. The matter is intricate, and incomprehensible to those who have not had optical experience or are unacquainted with Young's theory of colour as modified by Helmholtz and Maxwell. This once mastered, the rest is easy.

Gemini.—The field of experiment which you are following has already been well worked by others, as you will see for yourself by visiting the Patent Office and looking through the short abstracts of patents there kept for reference.

Hubert M.—The contrivance is palpably an infringement of the one which you refer to. Consult a patent agent as to the best course to pursue.

M. J. A.—Chloride of strontium can be used if you prefer it, but the ammonium salts is more usually employed. Strontium nitrate is nsed by pyrotechnists for red fire.

Kola.—Mr. R. A. Proctor, the astronomer, died in the autumn of 1888, at New York, of yellow fever.

M. C. C.—We are of opinion that the better appearance of one of the Meisenbach prints is not so much dne to the quality of the paper as the difference of tone in the ink. Both ink and paper are important factors in the printing of such blocks.

Cabinet Maker.—All the metal parts of cameras are advertised and sold by Messrs. Lancaster, of Birmingham, and we have no doubt that many London makers would also supply them.

Nemo.—The best way to judge of the effect which a drawing will have when reduced for zinco block work is to place it a distance of a few feet and look at it through a double concave lens, such as is employed in the "Aptus" finder. You can then see whether any of the foreground lines require strengthening, as they commonly do.

Emulsion Worker.—The emnlsion evidently takes up too much water in the washing operation, and this may be dne to faulty gelatine. Try precipitation with alcohol as an alternative process. For ten ounces of emulsion you will want about a pint and a half of alcohol, and much less if you nse the spirit warm instead of cold.

Fluoride may etch on glass by the following simple method. Coat the glass with a layer of wax dissolved in four parts of turpentine, and when dry draw a design by removing the wax with a pointed wire or crotchet needle. Mix in a leaden tray a small quantity of powdered fluorspar with sulphuric acid to the consistence of cream. Place the glass face downwards on this tray, and apply a gentle heat below the dish. The gas evolved (hydrofluoric acid) will then etch the glass where laid bare.

PATENT OFFICE LONDON

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1803. MARCH 24, 1893.

NOTES.

AT many of our picture galleries photographs may now be obtained of the principal works exhibited, and the system seems to meet with public approval, if we may judge from the numbers of such photographs which are sold. The National Gallery, London, was one of the first to encourage in this way a familiarity with the works of the best masters, and such means of educating the popular taste cannot be too highly commended.

WHEN the National Gallery first undertook this work, now some years ago, there was a great outcry because a foreign instead of an English firm had been commissioned to make the negatives. To the best of our recollection, the foreign photographer was chosen because of his previous good work in a Continental gallery, due to the employment of colour-sensitive plates. There was, at that time, little practical work done in this direction in England, for isochromatic plates had not been placed upon the market.

NOW, however, that the use of isochromatic plates and films has become so common, it seems incredible that photographs of pictures should still be taken with plates of the ordinary type. But here is a case in point.

VISITING the Birmingham Corporation Picture Gallery, last week, we took an opportunity of comparing the photographs for sale there with the original works. It was at once evident to us that the negatives from which the prints were made were not due to isochromatic plates, and that the operator had not troubled himself about a yellow screen.

LET us take two examples. The first was Mr. Henry Moore's beautiful and breezy seascape—one of the finest of his works—entitled "The Newhaven Packet." The colouring of this picture might be summed up, in Whistlerian language, as "a harmony in blue and gold." For the sea and sky are principally blue, while patches of sunlit cloud break the gloom of the latter and find reflection in the former. Comparing the canvas with the photograph, we see at once that all contrast has disappeared. The blue is much too light, while the gold is much too dark, the general effect being that of a grey ghost of the original work.

THE other picture is the comical study of penguins, by Mr. Stacy Marks, "Dominicans in Feather." Here the work does not lose so much as in the former case, for the birds are black and white. But there is one exception to this, and that is a ring of bare red flesh round the eye. In the painting this little bit of colour gives wonderful relief to the eyes of the birds; in the photograph it is entirely lost. The faults which we have pointed out would be impossible if the photographer had been "up to date."

THE Crystal Palace Company send us a copy of their Handbook for 1893, which is illustrated by photographs by Messrs. Negretti & Zambra. This little book contains a calendar of special events, and, of course, a very forward position is given to the coming Photographic Exhibition at the Palace. It speaks well for the wonderful organising power of the present management that it is possible to publish in advance a six months' calendar, and to state thereon the programme for each day.

SINCE Professor Dewar's last lecture on the liquefaction of air, further experiments have enabled him to freeze it into a transparent solid. Whether this consists of solid nitrogen in which liquid oxygen is entangled, or actual solid air, is not yet known. The doubt arises because, although nitrogen can be reduced to the solid state with comparative ease, oxygen has, up to the present time, withstood all attempts to solidify it.

The Croydon Camera Club holds its exhibition in the first week of April, and it will remain open from the 5th to the 8th of that month. We note that there is a class for hand-camera work, and another open to ladies who are not already prize-winners. There is also a champion class to which "distinguished photographers" will be invited to contribute.

The annual report of the Liverpool Amateur Photographic Association is a highly satisfactory one. The most noticeable feature in it is the occupation of the new Club-rooms in Percy Buildings, which are said to equal, if not surpass, those of any similar society in the kingdom. The premises include a general room, a library, committee, ladies', and attendants' rooms, a studio, printing room, and three dark rooms, lighted throughout by electricity. The number of members at the close of the year was 278.

The Island of Jamaica seems to be keeping abreast of the times. It is sending a large exhibit to the World's Fair at Chicago, and is issuing a sumptuous guide-book to its scenery and industries, illustrated throughout by photogravures.

Mr. G. W. Wilson, whose death we recorded last week, took one of the first photographs of Her Majesty the Queen, at Balmoral, in 1850. He also took a Royal group—of which the late Emperor Frederick of Germany was one—shortly before the marriage of the Princess Royal.

We believe we are correct in saying that the experiments in spirit photography, detailed by Mr. Traill Taylor in his interesting paper read before the London and Provincial Photographic Association, are not the first of the kind in which Mr. Taylor has engaged. We fancy that some five-and-twenty years ago he, in conjunction with another well-known photographer, paid a good deal of attention to the subject. The question put by Mr. Downey—namely, did Mr. Taylor really believe there was such a thing as spirit photography—is one which naturally occurs to everybody, but there is something in Mr. Taylor's reply that his personal belief was outside the question. We recollect, anyway, that the personal belief of the gentleman who was associated with Mr. Taylor at the time we referred to was rather an important factor in the investigations, and, unless our memory plays us false, this personal belief was constantly hovering between the opposite poles of incredulity and acceptation. Mr. Taylor, however, was as cautious then in expressing his personal belief as he is to-day.

The story about a certain Paris bank having an arrangement by which persons who present cheques are surreptitiously photographed is very venerable, and, we are inclined to think, apocryphal. Yet it is dished up as a fresh piece of news in *Sala's Journal*, and copied as a novelty by the *Westminster Gazette*. There are a good many photographic "chestnuts" about, and this is one of them.

Abnormal markings on negatives are constantly puzzling astronomical photographers, who sometimes find it difficult to distinguish between absolute phenomena and appearances produced by prolonged exposure or prolonged development. This question arose at the last meeting of the Royal Astronomical Society, when Mr. Ranyard pointed out, with regard to some photographs taken by Dr. Gill of the nebula in Argus, that at first the peculiar appearance of the nebulosity was suspected to be due to causes in the plate itself, until it was found that a photograph of the same nebula, taken in Sydney, corresponded exactly with Dr. Gill's negative even to the most minute details. As Mr. Ranyard pointed out, if such nebulosity was due to photographic action there would have been differences according to the instrument and photographic processes used.

The *Photographic Journal* is praiseworthily persistent in accumulating information as to the restrictions in force in various countries affecting the outdoor photographer. Some day, doubtless, the materials will be sufficiently ample to warrant collection and publication in a complete form. Before this is done, however, a little revision may be necessary. This month two communications appear, one referring to the Cape de Verde Islands and one to London. In the first-named group, we learn, there are no restrictions whatever, and the photographer is free to go wherever he pleases. In London, it will be news to English photographers to be told that the controlling authorities in regard to photography are the County Council and the Office of Works. The exact words are: "For the interior of the monuments of London, it is necessary to be provided with an authorisation, as in the case of the squares and the parks, permission, being obtained from the County Council or from the Office of Works." The writer adds: "This information has been furnished by an English amateur photographer." It is very clear that either the English photographer or the writer is a little mixed in his facts.

PHOTOGRAPHY IN AUSTRIA.

BY P. LEBIEDZINSKI.[*]

How to use Celluloid Matt Paper.

THIS paper produces fine matt prints looking like steel engravings, heliogravures, &c., &c. It is suitable both for copying out and partial copying with development. The sensitive side has a light velvety gloss and a regular matt appearance. which make it easy to distinguish it from the other side.

In general, the process is the same as to printing, toning, &c., as with other silver papers, but with this difference, that celluloid matt paper prints and tones much more quickly, and consumes far less gold or platinum. In order to produce soft brilliant prints, celluloid matt paper, unlike platinum or aristo matt paper (copying-out process), does not require specially powerful or hard negatives. It will produce, as one wills, all sorts of tones, from warm brown to the deepest black.

All kinds of platinum baths—nay, even toning and fixing baths—may be used if properly adapted. The general rule is as follows :—Any toning bath must be diluted with so much water that it tones regularly (without causing spots) and not too rapidly (in not less than two to three minutes), and does not attack the half-tones. The degree of dilution depends on the composition of the bath. Some act quite well undiluted ; others must be diluted with half their volume, or even double their volume, of water.

Good results can be produced also with gold baths with borax, with acetate, tungstate, or phosphate ; also with chloride of lime—taking care, however, not to let the gold content exceed 1 ÷ 2,000 water.

For a platinum toning-bath I recommend 1 gramme chloro-platinite of potassium and 6 grammes (one teaspoonful) chloride of sodium, ammonium chloride, or the potassium chloride recommended by Dutkiewicz. The bath may be used at any time, even immediately after preparation. It keeps perfectly, and tones very fast and equally. The shade of the tone is dependent on the nature of the chloride. Sodium chloride and ammonium chloride produce rather colder tones than does potassium chloride, which produces the greatest variety of warm black tones, yet the difference is not very great. Other chlorides act similarly without any marked differences or advantages. The quantity of chloride may vary greatly —say from 0·6 to 60 grammes. If one puts altogether too much, it retards the toning considerably, but without affecting the final result. The prints are put into the bath washed or unwashed, and remain in it till, in looking through, one sees the desired tone, and then they are put into the fixing bath.

The manipulation of this platinum bath is very simple. If it begins to tone too slowly, add some chloride to replace the quantity exhausted, which occurs only when the pictures are toned unwatered or badly watered. The toning must be very slight, as the pictures recede but little, and, after drying, recover their full vigour. For deep black tones one tones somewhat more, and till, in looking through, they appear quite black. For somewhat warmer tones print and tone less. I particularly recommend this bath because it is uncommonly saving and cheap, does not contain any poisons, and is easy to handle. This same platinum bath is applicable for all aristo papers, with this difference, that, to avoid too slow toning, one may take half the quantity of water.

The fixing bath consists of 1 part of fixing sodium in 10 parts of water. The reaction of the bath should be alkaline rather than neutral, particularly if acid toning baths are to be used. In five to six minutes the prints are fixed. Only such prints as have not yet attained to the desired tone—*i.e.*, are still too warm in tone—remain in as much as ten minutes. The prints go direct from the gold bath, or above-mentioned platinum bath, to be fixed. With other toning baths, or when working wholesale, it is much more convenient first to water the toned prints and then to fix them all together.

As a toning and fixing bath suitable also for all other papers I recommend 900 cm.^{3} water and 100 grammes fixing sodium. After dissolution, add 10 grammes acetate of lead dissolved in 100 cm.^{3} water and 20 cm.^{3} solution of gold chloride.

The bath may be used at once ; it is the simplest and easiest bath to prepare. The black deposit that forms in time has no effect, and may be filtered off. Of course, such prints do not last so well as those toned in separate baths.

Washing lasts one to two hours in water changed several times. When washing, keep the image downwards.

In drying, do not roll the pictures together.

Mounting is done in the usual way.

After drying, the pictures obtain their full vigour and a fine matt surface without the use of any artificial means. Pictures glazed cold show a finer matt surface and greater vigour.

The image is on the surface, and not, as with many matt papers, in the paper, and, consequently, is particularly effective and plastic. Partial copying with development is employed if one wishes to obtain as many pictures as possible in a short time, or when the negative to be used is too flat or weak, and in printing does not produce the right vigour and tone, and, also, if the negative has been developed too powerfully. In all these cases, the developing process produces beautiful brilliant pictures without special difficulty. This process is fully described in my "Gebrauchs-Anweisung fuer das Collodion Papier" (1890).

I consider the best developer for matt, and also for collodion, papers to be the gall developer recommended by me in 1890, but with this difference, that acetate of lead should be substituted for nitrate of lead, and should be diluted with water before using, for prints from normal or hard negatives with 5 to 10 volumes ; if flat negatives are used, take 1 to 3 volumes of water, or even develop with a concentrated solution. By these means it is possible that all gradations of vigour are at one's command. To avoid finger-marks on the prints in developing, it is well to use pincers with rounded points, or indiarubber finger-stalls.

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[*] From the *Photographische Correspondenz.*

One proceeds exactly as in toning. It is possible to develop several at once and to use the developer till it is turbid.

To avoid the inconvenient after-developing in washing water, I recommend the addition of a little common salt to the washing water. The pyro developer recommended by E. Valenta also produces good results, but I prefer the gall developer for these reasons:—(1) It is the cheapest of all. (2) It can be used greatly diluted. I myself have prepared 1,500 carte-de-visite pictures on my collodion paper, using only 250 cm.^{3} of the above developer, diluting it with 2·5 litres of water. (3) The colour of pictures developed with gallic acid is nearly the same as that obtained by printing out, which makes it easier to judge of the right vigour, whereas pictures developed with pyro always look weaker than they will finally be because of their yellow colour.

Retouching.—Celluloid matt paper takes pencil, chalk, and colours as easily as does ordinary writing paper.

THE WIDE ANGLE CLUB.—IV.

THE interest in the question-box does not appear to have died down, for before the arrival of the President several members were seen to slip in small pieces of paper. The President evidently had something of importance to communicate, because he quickly got into the chair, and, not finding the hammer at once, used his fist. After the formal business was duly transacted, he said:—"Bumbledonians, Countrymen, and Friends,—I have just returned from London, whither I journeyed on behalf of this great city. But I did not forget this great Club—(cheers)—and I took the opportunity of attending three meetings. (Bravo.) One was about a proposed new Central Club, the other at the London and Provincial Photographic Association upon 'Spirits,' and the last the smoking concert of the Photo Club. Candidly, there was as much going on with spirits at the last, but there was no discussion. Having heard several gentlemen of eminence upon the spirit question, I propose, if it is your good pleasure—(great cheering)—to read a paper upon the question at our next meeting."

Mr. Johns rather objected, as he was down for a paper upon "The Advisability of having a Club Organ"; but the President thought there ought to be no selfishness in the Club at all, and he felt sure that Mr. Johns would give way.

Mr. Johns: "No; I'm not going to be sat upon, if I am in a corner near the door; I only want fair play."

Mr. Brewer suggested that turning the handle of an organ was easy enough, and he could not see what it had to do with photography.

Mr. Johns explained that he meant a journal in which to expressly chronicle the proceedings of the Club and to ventilate his opinions.

The President offered to toss up (sudden death), which Mr. Johns agreed to. The President won, and business proceeded smoothly again.

Mr. Jingle brought the paper containing the answer to the query about straining the lens, and read it out as follows:—"The matter was fully treated in our 1892 Annual, which please buy, as it is well worth the money," and expressed his regret that the matter was not more explicitly dealt with.

The question-box contained ten queries, most of which, however, were of an elementary character. An incident nevertheless occurred over the one—

"Is the ether saturator safe, and how far shall I go when it explodes?"

Mr. Toppingly thought the safety was not assured: but how far he would go would depend upon his ultimate destination. If a warm atmosphere, the distance was not great. He thought that a great deal might be written about the danger of the ether saturator, and——

Mr. Fordwell interrupted with—"Rot! Prove it!" for which he was called to order by the chair. He ordered lager.

Mr. Johns was anxious not to speak too often, but he thought it was a case of stuffing, whereupon Mr. Toppingly indignantly denied that he was stuffing anybody. Both members got up in an excited state and glared at each other, whilst Mr. Fordwell rudely shouted, "Proof, under or above, but proof!" However, things quieted down again, and the Chairman said he was glad to see things earnestly discussed, because he detested too much unanimity.

The Hon. Sec. announced that the Executive Committee had decided upon a smoking concert—(uproarious cheers)—at which he had no doubt the members would shine as much as they did photographically.

The President next reported his visit to the meeting in the Memorial Hall, London, to found a new club. Although he was rather mixed in his idea, he could tell them that the Club was already formed, but members joined conditionally only on the Club being formed. The idea was one well worthy of provincial support—(hear, hear)—because, although the members might not have business in London twice a year as he had, yet they might at some time or other get there. It would be nice to have a habitation and a home where plates could be changed and the brand of whisky would be good. There would be gathered together all the renowned men of the day and to-morrow, and every provincialist could step in and ask as many questions as he chose. He thought that, provided decent cigars were obtainable, the dark room always open, and all the photographic papers on the table, it would prove a most acceptable retreat for the weary street-trotter. (Applause, which was instantly suppressed.) He brought the matter before the meeting, as he felt the importance of his delegateship of the Bumbletown photographers at the time, and assured the London meeting that Bumbletown would work hand-in-hand with them. He was sorry that, owing to an engagement with my Lord Snuff, he did not arrive until after the Chairman had been elected, as he felt sure the post would have been offered to him, and what an honour this would have been for the Wide Angle Club! Referring next to the

Photo Club smoking concert, he gave a few details, but promised to give the hon. sec. all help and information, so that their first venture might prove a successful one. (Cheers.)

Mr. Put-out complained that he had not yet got his certificate from the Whitefield Exhibition, and requested the official assistance of the Club in compelling the authorities in future to send off the medals and certificates within an hour of the awards being made.

The Hon. Sec. reported that a member very much wanted to give a lantern lecture upon Norway, as he was there for at least a week last summer and had secured the most marvellous negatives.

The President suggested that it might be given in bits at the smoking concert, and, though several members grumbled—saying that they could show much better work—it was decided by show of hands that the matter be left to the committee. A protest against the result was made by Mr. Quibble, on the score that one member raised his left instead of his right hand, and another had a glove on, but the President would not entertain it.

As the members slowly parted, it was universally felt that the Club and the whole photographic world would benefit by such interesting and instructive meetings as the one concluded that night.

* * *

VISIBLE AND INVISIBLE DEFECTS IN LENSES.

AN interesting article is contributed by Mr. T. R. Dallmeyer, F.R.A.S., to the *Optician*, under the above title; and we here reproduce it. After a short introduction, Mr. Dallmeyer writes :—

The only visible defects in the mounting that are likely to attract attention are due to careless or bad blacking inside the lens mount, and improper attention to the bronzing of diaphragms (of all kinds) that may be employed. If the blacking should peel off or diaphragms become shiny, there is always the danger of internal reflections that considerably affect the final brilliancy of the image. It would be well if photographers had their lenses and diaphragms reblackened occasionally. Opticians cannot and do not neglect the mechanical excellence of their metal work, but the value of their instruments depends chiefly on the brains and honesty of purpose brought to bear on the glass work.

I remember being told of an amusing case occurring at the Philadelphia Exhibition of 1867. In the Chinese or Japanese section—I forget which—there was a most perfect imitation of an English microscope, gauged perhaps to within the ten-thousandth part of an inch to every measurement of its model, but the lenses—alas, they were little bits of window glass !

Now the *serious defects* in lenses are *invisible* by ordinary handling or examination ; but the visible ones, such as "dead metal" and "air-bells," are really of very little moment if the invisible defects are not present at the same time. "Dead metal," that usually appears as small black or white specks, sometimes as feathers, can only stop an inappreciable amount of light—unless they are very numerous—and does not affect the working of the lens. "Air-bells," again, disperse a very small quantity of light, but neither these nor "dead metal" affect the working of a lens in any appreciable degree. It is needless to say that it would be impossible to pass glaring defects even of this character—say, three or four in one lens : but the high price we have to pay for "first quality" optical glass in order to be insured as far as possible against other defects, makes it sometimes imperative to allow an occasional comparative eyesore to pass when we are satisfied with the other really more important qualities necessary for the production of perfect work.

The invisible defects arise from three causes :—

(1) Imperfect annealing.
(2) Striæ, or veins.
(3) Bad figure.

(1) Imperfect annealing arises from too rapid cooling of the "pot" of glass, or sometimes a portion only of the "pot" may became subjected to a sudden draught. When glass is badly annealed, it is not homogeneous in its structure, and lenses made from it, that are intended by construction to be aplanatic, cannot be made so ; in other words, they will not define perfectly.

This defect is readily discovered in the raw discs, and it is usual to have discs 2½ inches and larger in diameter, polished on their flat surfaces in order to make a careful examination of them before they are worked. The test for ascertaining the condition of the annealing consists in passing a beam of polarised light through the disc and examining it with a Nicol's prism. Beautiful shapes and colours are (unfortunately) sometimes observed, proving the imperfect annealing ; but the test has usually saved one the time and expense of working a glass that could never have been of any real optical value, although it might look to the ordinary observer perfectly clear and limpid.

Small work is usually moulded to a shape something near the final form the glass will assume ; the test in this case is not generally possible, although polished facets can sometimes be conveniently made. As a rule, however, opticians have here to rely solely upon the skill and care of the optical glass manufacturer in the moulding and annealing.

It is not infrequent that very heavy losses are incurred by the optician in having to discard a high percentage of "finished" (*i.e.*, polished) work through the defects of badly annealed glass not being discovered until the lenses are ready for preliminary *optical* examination.

(2) Striæ, or veins, are produced in the manufacture of glass, probably in the process of stirring the materials of which it is formed. They are quite as serious a defect in lenses as badly annealed glass, but more difficult to trace before the glass is worked. They seriously interfere with fine definition.

In examining a polished glass disc, before it is worked, for the number and size of specks, we do all we can to detect the "veins." The room is darkened, except for a small light left burning at the other end ; the disc is held up by one hand, and a magnifier taken in the other, and a crucial examination made through the thickness of the glass to trace them. A practised eye is usually successful, but it not infrequently happens that the disc has taken the form of the finished glass before they are discovered. With a convex polished lens, veins are more readily detected by "blazing" them, as it is called. This is done by placing the eye in the focus of the lens when it is directed upon some bright light, such as a gas flame. The whole disc of the lens is flooded with light, and the veins become more easily seen. What has been said about moulded glass in reference to bad annealing applies with the same force here, and is a frequent cause of sacrificing "finished" work, and discarding it for the waste box.

(3) *Bad figure, &c.*—This is a technical term, but is a very important "invisible defect." A lens, well annealed, free from veins, not even a speck in it, and finally polished, may be utterly useless from bad workmanship. To polish glass is not at all a difficult matter, but to properly maintain the spherical "figure" of the lens in polishing requires the very highest of skilled labour. A departure from the true "figure" will destroy the defining power of a lens centrally, and excentrically.

As to the polish itself, the higher it is, consistent with the maintenance of perfect "figure," the finer will be the definition given. The appearances that the different "invisible defects" give rise to in the image are known and distinguishable after constant and patient practical experience. It is well that this is so, for, were it otherwise, the continual grinding away at calculations to find errors that probably did not exist would result in a sorry time for the man who only had his theoretical knowledge to fall back upon. Theory and practice are both essential. If lenses were made figuratively "on lasts," and turned out irrespective of any but *visible* defects, opticians would soon glut the market with cheap rubbish that might include an occasional "fluky" exception.

If a man takes a pride in his work, he will not only attend to the "visible" defects, but the "invisible" defects too, and never let any work carry his reputation abroad without having first conscientiously said of it to himself, "This is the best I can do."

* * *

We had the pleasure, a few days ago, of seeing the exhibits Mr. Van der Weyde, of Regent Street, is sending to the Chicago Exhibition. We are all of us familiar with this gentleman's excellent work, and it is almost needless to say that he is despatching some of his choicest specimens. The most important picture is a life-size portrait of Miss Neilson, as "Hypatia," an enlargement, about eight feet high, from a negative of some twenty-four inches. Mr. Van der Weyde will also exhibit several prints showing the advantages of his new "correcting" lens, by which the sitter's hands and feet are put in proper relation to the body, instead of being represented as half as large again as they really are. We also saw, and very much admired, a very charming crayon, or rather "pastel," portrait of a lady, which combined a pretty face, pretty colour, and artistic treatment.

PRACTICAL REMARKS ON LANTERN SLIDE-MAKING.

BY J. K. TULLOCH, M.B.

AT the fag-end of a meeting last session, Mr. Baird passed through the lantern for me a number of my slides, interesting chiefly because made by some of the less used processes; and, as I have been repeatedly asked by members of the Society to show them again. I have extended the idea somewhat, and pose to-night rather as an experimentalist than a practical slide-maker.

When I take up a process, I generally keep at it, until I have made what appears to me the most of it: in any case, I never stop short of being able to produce presentable results by it. In many instances, I have gone on until such time only as I had mastered the process, and produced one or two slides by it. It frequently happens that a process may be capable of giving very fine results at times, and yet not such a process as one would care to work constantly. In such cases, it is excellent practice to make a small study of the subject, and after attaining success to "leave it for fresh fields and pastures new."

You will please understand, therefore, that the slides which are to be shown you are not shown as models of what slides ought to be, but merely as fair specimens of the various processes they are to illustrate.

Almost every process requires (if one is to make the most of it) a special quality of negative. It follows from this that I have had to pick out from my negatives one suitable for the process in hand rather than one artistically good. Let no one, therefore, go away, saying there is nothing special in this slide or that slide; the production of a pretty picture was not always the aim of the experiment.

While, therefore, safeguarding myself against the imputation of putting these slides forward as being something specially fine, I, nevertheless, claim that they represent fair average work of the various processes touched upon, and such as any one designing to work any of these processes may attain to, with the moderate care which the average amateur bestows on his work.

As to the precise practicability in every-day work of these out-of-the-way processes, I will speak more particularly later on. My remarks will apply to slides in collodion wet and dry (but not with collodion emulsion, with which I have done very little), carbon, gelatino-chloride, gelatino-bromide, powder process slides, Alpha and albumen. I include the better-known processes for comparative purposes.

As conclusion to this introduction, I may say that most of the slides have been made quite recently—that is to say, I have prepared the most of them to refresh my memory for, and to serve as illustrations to, this paper.

COLLODION.

With the exception of slides done by the Woodburytype process, collodion is the process adopted by probably 99 per cent. of the professional slide-makers. It seems absurd, therefore, to include this as one of the "out-of-the-way" processes. It is so, however, in reality as far as the amateur is concerned. From time to time attempts are made to show how simple the whole thing is, and how unobjectionably simple it truly is, but not unobjectionable. What are the claims made on behalf of the collodion slide? They are these:—First, absolutely pure high lights; second, vigorous shadows; third, good gradations; fourth, agreeable colour. These good qualities a collodion slide generally has, but there is one good quality which a slide ought to have which the vast majority of collodion slides have not—that is, transparency in the shadows. I maintain that with *suitable* negatives gelatino-bromide does come within measurable distance of a collodion slide with a tithe of the trouble. To test this point, we will ask Mr. Baird to place the two slides marked 1 and 2 in the lantern. No. 1 is a collodion slide, by Wilson, of Aberdeen, a master of the art of slide-making; No. 2 is a gelatino-bromide slide from one of my own negatives on a commercial gelatino-bromide plate.

I maintain, and I think you will agree with me, that, while there is a difference, the collodion slide is not immensely better. If collodion cannot do *very much* better than gelatino-bromide, I hold that, to the amateur, the extra mess and trouble simply exclude collodion.

My remarks heretofore have related to wet collodion, but very fine slides may be made on dry-collodion plates, both prepared.

Slide No. 3 was made as follows:—A plate of glass was cleaned, and coated with collodion, dipped in a bath of silver thirty grains to the ounce, and then washed, flooded with an infusion of pure coffee, and dried. After exposure under a negative to gaslight, the transparency was developed with acid pyro and silver. It came up the colour you see it, no toning being necessary. Of course, it was fixed in hypo.

Various preservatives, other than coffee, may be used, and different colours obtained in the slide. An infusion of tea gives a brownish tint, and tannin gives a very fine purple-blue—better, I think, than a wet-collodion plate toned with a sulphide.

I sometimes wonder why it is that dried bath plates are not supplied by the dealers. They are extremely easy and certain of preparation, would compete with gelatine plates in cost, and, preserved with a solution of albumen, are hardy enough to stand pretty rough handling.

My best collodion slides have been prepared by this dry method. I selected this one to show the peculiar colour got by a coffee preservative. For those who care to try the collodion process, I would advise a preservative of ten grains of tannin, and ten of sugar candy, to an ounce of water. Plates so prepared give excellent slides.

We pass on now to the consideration of carbon slides. Carbon is said to be *the* process for producing slides of the two extremes—best and worst. I must say that no process in photography came so near to going up my back (as the saying goes) as the production of carbon slides.

The Autotype Company, in their manual, say that *very fair* slides may be produced by the carbon process. I think that this is over-modestly stated. Of course, a good deal depends upon what qualities one likes in a slide; but, for myself, I only wish I could produce all my slides in carbon.

Scattered throughout photographic literature are articles on the production of slides in carbon without number. According to most of the writers, it is an easy process, according to all a beautiful one. To read the commonplace and general directions given would lead one to suppose that mistake was impossible. Methinks some of those who have written on the subject have never made carbon slides. I cannot give you a better idea of the troubles one may meet, and how they may be overcome, than by giving you a short history of my own experience.

When I first determined to try the making of carbon slides, I was even then a fairly efficient printer in carbon, and had plenty of material by me. I had no special transparency tissue, it was true, but had I not read again and again that ordinary tissue would do excellently—indeed, in some cases, better than the special transparency tissue? I made the experiment. Result, universal flatness and weakness. I tried a denser negative. Improvement, but not much. Then I would intensify the slide. How I laboured at this! At last, after a great many failures, I got one good picture. Mr. Baird will show it as slide No. 4. This slide, after development, was soaked in an infusion of logwood, lightly washed, and soaked in a weak solution of sulphate of iron.

The great trouble in this staining process is this, that, do what you will, your high lights take on the stain. I am aware that, theoretically, the high lights in a carbon slide ought to be bare glass; but, practically, there is an imperceptible skin—enough, when stained, to spoil the slide.

The picture on the screen is absolutely the only one I ever got with pure high lights by this staining method. I then sent for the special transparency tissue, and wish I had done so at first.

The special transparency tissue carries much more pigment, and pluck and density are now with suitable negatives quite possible.

(*To be continued.*)

◆

Royal Institution.—The following are the lecture arrangements after Easter:—Mr. John Macdonell, three lectures on Symbolism in Ceremonies, Customs, and Art; Professor R. K. Douglas, three lectures on Modern Society in China; Mr. E. L. S. Horsburgh, three lectures on the Waterloo Campaign; Professor Dewar, five lectures on the Atmosphere; Mr. R. Bowdler Sharpe, four lectures on the Geographical Distribution of Birds; Mr. James Swinburne, three lectures on Some Applications of Electricity to Chemistry (the Tyndall Lectures); Mr. Henry Craik, C.B., three lectures on (1) Johnson and Milton, (2) Johnson and Swift, (3) Johnson and Wesley; Dr. A. C. Mackenzie, three lectures on "Falstaff," a Lyric Comedy, by Boïto and Verdi (with musical illustrations, by kind permission of the composer and publishers, Messrs. Ricordi, specially granted for these lectures). The Friday evening meetings will be resumed on April 14th, when a discourse will be given by Sir William H. Flower, K.C.B., on Seals; succeeding discourses will probably be given by Professor A. B. W. Kennedy, Professor Francis Gotch, Mr. Shelford Bidwell, the Right Hon. Lord Kelvin, Mr. Alfred Austin, Mr. Beerbohm Tree, Professor Osborne Reynolds, Professor T. E. Thorpe, and other gentlemen.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, MARCH 24, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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PATENTED PROCESSES.

SOME time ago it was stated by someone who was supposed to know all about it, that only 1 per cent. of the many persons who take out specifications for protecting their ideas make any money out of the speculation. The rest are losers. Yet, notwithstanding all such warnings, the Patent Office attracts the needy inventor as the magnet attracts iron, and hundreds of notions which are worthless, either through their own inherent imbecility or from having been previously used commercially, or possibly from having already formed the subject of protection, are taken to the office, and fondly welcomed and gathered in by the authorities. There is only one precaution which the inventor need take before entering those sacred precincts, and that is to carry with him the needful cash to pay the necessary fees. Provided that he carries out this ready-money transaction he may patent what he likes, quite irrespective of the question whether it has been patented before. The authorities will give him no information on the point, and unless he has a mentor in the shape of an expert patent agent, he can, if he likes, patent the steam engine as a new and original idea, and the office will solemnly grant him protection for it. The new patent law, without making much reduction in the total amount of fees payable, spreads the payment out in smaller sums than heretofore, and this convenience has had the effect of considerably increasing the number of patents applied for, but it provides no remedy for the repetition process to which we have just called attention.

Photographers and photographic apparatus manufacturers are constant visitors to the Patent Office, as our readers know, and for years we have devoted a weekly column to their doings. Such patents are far more common here than in other English-speaking countries. In America, for example, the photographic patents are very much fewer in number than they are in England, although Americans, as far as general patents are concerned, are far more prolific than are their English cousins. But the American Patent Office is more kind and encouraging to her children than is her English representative. In the first place, she charges little more than a nominal sum for complete protection; and, secondly, she undertakes as part of her duty an investigation which shall decide whether the applicant has or has not been anticipated by a previous specification. That this is only fair and a straightforward mode of conducting such a transaction is obvious, and it points to a revision of our patent law which should be insisted upon when opportunity offers.

It will be useful as a warning to would-be patentees if we take from the published specifications one instance only of the manner in which an idea can be patented and repatented without difficulty. We could refer to a dozen or more if necessary, but one will serve the purpose which we have in view.

About fifteen years ago the so-called Crystoleum process was brought forward. Whether it was patented under this new name or not we do not know, but certainly the same process had been patented more than once before, and we know for a certainty that it has formed the subject of a specification again within the last two years. But let us give facts and figures.

So long ago as the year 1852—a few months after the introduction of the collodion process—a patent was granted to Jacques Léon Tardieu for "certain improvements in the colouring of photographical images. A paper photograph after varnishing is mounted on a sheet of glass, and oil colours are laid on to the back of the photograph, the transparency of the paper permitting the colours to appear in all their brightness on the paper side of the photographical image." The painted surface is afterwards backed with some suitable material which is glued to it, and the picture is complete.

It seems almost incredible that, twelve months after the date of this specification, another patent was applied for and granted to one Duppa (1853, Nov. 3, No. 2,552) for what seems exactly the same process, although the specification is headed "Improvements in colouring photographic pictures." These improvements consist in "rendering the front surfaces transparent with suitable varnish, and applying colours to the back surfaces, by which means the laying on of the colours will not require that artistic skill heretofore necessary, and results are obtained which cannot be obtained by colouring on the front surface."

The Patent Office people now seem to have rested for exactly one month, but they must certainly have laughed in their official sleeves when they granted protection a third time to Laverdet in December of the same year (1853, December 8th, No. 2,856) for the same colouration process expressed in slightly different language. "This invention," we are told, "relates to a mode of colouring photographic pictures, so as to give them a life-like or natural appearance, without impairing the exactitude of the photographic image, as is the case with the ordinary method of colouring, and without requiring the manipulation of a skilful artist." The photograph is rendered transparent "by coating the back with varnish, and causing it to penetrate the pores of the fabric containing the picture." When the varnish is dry, oil colours are laid on the back of the picture, "so as to imitate as closely as possible the natural tint of the object represented."

Two years later, Garnier (1855, March 5th, No. 488) is allowed to patent a process which includes varnishing and colouring from the back.

We will not proceed further in our search. We have quoted instances enough of the peculiar custom of our Patent Office in receiving money for protection which they have already sold to somebody else. And this will be enough to put aspiring patentees on their guard, while it will surely be sufficient to prevent any more specifications being applied for which have for their subject the colouring of photographs by what is now for convenience known as the "Crystoleum" method.

* * *

Messrs. Perken, Son, & Rayment have brought their competition to a close, and the one hundred pounds' worth of apparatus offered by them has been distributed as prizes. Some of the pictures sent in are of great merit, and our attention has been especially called to a number of 24 by 18 bromide enlargements taken from quarter-plate negatives (mostly of the hand-camera persuasion), which have been prepared as evidence of good definition and wealth of detail in these small pictures.

ROYAL ASTRONOMICAL SOCIETY.

At a meeting of the Society held on the 10th inst., Dr. Isaac Roberts read a paper on "Photographs of Clusters M 103 and M 77 and Comet Holmes." Lantern slides had been made from the photographs, and were thrown upon the screen. Dr. Isaac Roberts said: "The photograph of 103 Messier was taken with an exposure of one hour. It shows no nebulosity in the cluster. Sir John Herschel described this cluster as 'bright, round, rich, and composed of pretty large stars extending down to the 11th magnitude.' The photograph shows that it is composed of stars of very different magnitudes, ranging from the 8th to the 15th magnitude. Several of the larger stars appear to have *comites* or small companions near them. The cluster is not round or symmetrical in shape. At about 40 minutes from it, in the north following quadrant, is another remarkable group of stars. There are eight stars, all of the 10th magnitude, arranged in two parallel straight rows of four stars each. They are so close together that as shown on the plate the star discs overlap, and it appears more like a star-trail than a line of stars. But I have made another photograph with a short exposure, and on it the stars are seen as small separate dots. It is surrounded by stars ranging from the 10th to the 14th magnitude; but, as far as I am aware of, this remarkable little cluster is not referred to in any catalogue of such objects. Another photograph taken some years hence may show whether these stars form a system in motion. The next picture which I will throw on the screen is a photograph of Messier 77 Ceti, a nebula which is described by Sir John Herschel as 'pretty bright, pretty large, regularly round, suddenly brighter in the middle.' A drawing by Mr. Lassell of this nebula, which was published in the *Philosophical Transactions*, shows the nebula with spiral whisps, and with a nebulous star in its near neighbourhood. The Earl of Rosse also describes this nebula in his Catalogue of Clusters and Nebula as spiral in form; but the photograph does not show it to be spiral, though there are a good many bright patches in the nebulosity and details of structure visible in the negative which are not recognisable on the enlargement thrown on the screen. The star which Lassell referred to as nebulous does not show any nebulosity on the photograph."

Dr. Isaac Roberts then threw on the screen several photographs of Holmes's comet. The first was taken on the 18th of January, 1893, with an exposure of 30 minutes. It then appeared as a circular nebulosity, with a dense nebulous centre. The extreme diameter of the nebulosity as shown on the plate was 27 seconds of arc, and the diameter of the nucleus 14 seconds. The nucleus and the nebulosity had not defined boundaries, but shaded off into one another. On the 21st of January another photograph was taken, and on this the comet appeared like a large nebulous star with a diameter of 145 seconds of arc, with a nucleus of only 3 seconds in diameter. The nucleus and the nebulosity surrounding it are both circular in outline, but are not sharply defined. On the 27th of

January another photograph was taken with an exposure of 15 minutes. On this photograph the comet is seen to have a faint tail. The nucleus is elongated, and the nebulosity surrounding it is more sharply defined on the side towards the sun. On the 4th of February another photograph was taken with an exposure of 52 minutes, and the appearance of the comet had not much altered. In fact, it had returned to the appearance it presented when it was first discovered.

Dr. Roberts then threw on the screen a photograph which he had taken on the 18th of November, 1892, soon after attention was called to it. The exposure was for 75 minutes, and the extreme diameter of the nebulosity was at that time 12 minutes of arc. There was a small, elongated nucleus, with a tail stretching away from the sun. The changes of appearance of this comet are very remarkable. It appears to have lost its tail, to have assumed the appearance of a nebulous star of the 8th magnitude, and then to have regained its former appearance.

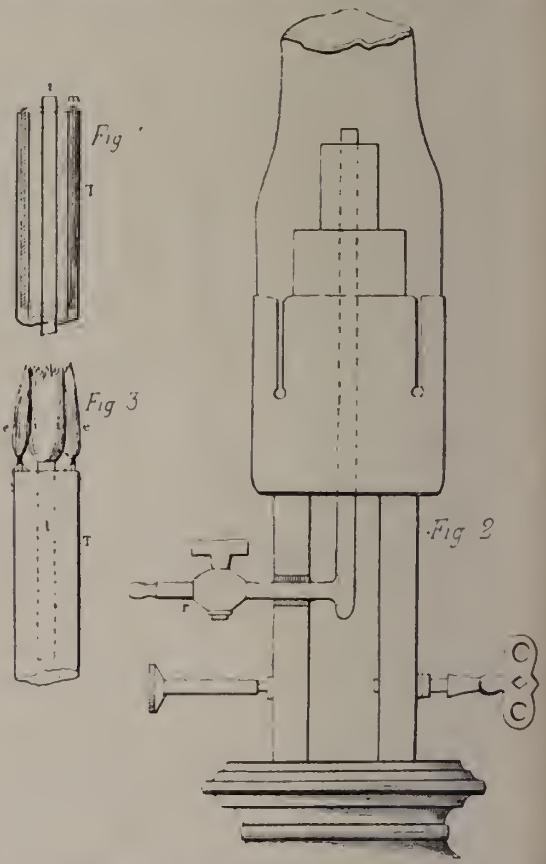
NEW METHOD OF LIGHTING FOR PROJECTION PURPOSES AND ENLARGING.

BY L. COURTOIS.

IN studying the method which we are about to describe, our aim has been to place at the disposal of amateurs in lantern work a source of very white light, extremely actinic and intense, with a flame of small relative surface, this latter characteristic being especially important for the uniform lighting of enlargements.

As the name of the new process indicates (oxy-oil), we increase the luminous power of oil lamps by means of oxygen; but the employment of this gas is easier, and, above all, less costly than the oxyhydrogen or oxycalcium lights. Until the present time, oxygen has been employed with hydrogen, coal gas, alcoholic fumes, ether, or gasoline, so as to obtain flames which had no lighting power, but considerable heat, and capable of raising to a high temperature a substance not very fusible—lime—which then emits a vivid white light.

It occurred to us that by introducing a limited quantity of oxygen into the interior of a flame produced by the combustion of a hydrocarbon, it might be possible to raise the internal temperature sufficiently for the particles of incandescent carbon of the exterior part to be brought to a dazzling whiteness, and experiment has testified to the truth of our theory.



t. Oxygen tube. M. Wick. T. Wick tube. *i*. Internal zone of flame intensely hot. *e*. External light-giving zone. R. Tap governing oxygen supply.

The first experiment proved conclusively that the petroleum lamp in common use was a thing to be avoided. The conical funnels enclosing and guiding the wick made it much too hot. The volatilisation of oil became too great, the lamp smoked horribly, whilst the glass blackened and broke. We then tried, and finally adopted, the moderator lamp, which burns with purified colza oil. The kind we employed has a cylindrical wick of about 13 millimètres in diameter. The illuminating power of this well-regulated lamp is equal to that of three or four candles. The annular flame measures then 15 millimètres in height. In the interior and well into the centre of the tube wick-case (Fig. 1) we have adjusted, and fixed by soldering, a tube of fine brass inside, and terminated by a spigot, placed above the button, which serves to raise the wick (Fig. 2). This arrangement facilitates the simultaneous regulation of the height of the wick and of the spread of the oxygen. The dimensions of the little tube exceed those of the cylinder containing the wick by about 4 millimètres. It is the height which we consider the best for colza oil; but it is a good thing to be able to vary it at will, and to that end the tube should be in two parts, made to fit into each other by hard pressure, and having a joint sufficiently long to prevent the oil from penetrating into the interior by any small crevice. The wick must be cut with great care to prevent the lamp flaring. It must then be lighted, and the glass placed over it. The flame becomes conical, and is less brilliant than before, for the interior admission of air is great impeded, if not suppressed, by the presence of the tube *t*. The spigot R must be slowly opened; thus, the current of oxygen and the corresponding height of the wick is regulated according to the degree of intensity required, the flame becomes dazzling, and becomes from 5 to 25 millimètres in height. The maximum of light is obtained when the flame is on the point of turning smoky; but, after this, the more its height diminishes the more the luminous effect is decreased. Briefly, the properties of such a lamp are very elastic, and one can obtain from it the exact degree of intensity required in any particular case. With a consumption of 20 litres of oxygen an hour, a splendid light for lantern work is gained. The luminous power can be increased till equal to that of 25 candles by augmenting the spread of the burning gas. The chimney is only necessary to give steadiness to the flame. It ought not to strangle it, for in that case the flame would become meagre, the two zones of which we have spoken before (Fig. 3) are no longer distinctly separated, and the total luminous power diminishes in consequence.

The richer the oil in carbon the greater will be the luminous power for an even surface of flame. It is probable that oil, charged with camphor and heavy hydrocarbons, little inflammable, would be well adapted to this kind of lamp.

There is no doubt that the easiest type for the amateur to modify is the old-fashioned moderator lamp with reservoir beneath, and a spring secured by a hook. For those lanterns to which this kind of lamp is not adapted, there is the one with lateral reservoir, and with the oil on a constant level. It will be necessary to use this kind of lamp if the oil employed should not be very fluid.

In making use of burners of considerable diameter, the oxygen would have to be brought through an annular tube in order to make it of practical utility. In this way, considerable illuminating power may be secured. Examined with the spectroscope, the oxy-oil flame presents a spectrum a little less rich in red and yellow rays than the solar light, but very powerful in blues and violets, and, consequently, very actinic.

The photographer, in making enlargements, will know how to utilise this property in conjunction with another quality more important—intense light, emitted by a small brilliantly lighted surface, and the consequent complete utilisation of the luminous power. It is by no means the same with regard to lamps with a cylindrical wick of large diameter or with multiple wicks, which, to their inefficiency in other respects, add the additional disadvantage of irregularity of light.—*Bulletin de la Société Photographique du Nord de la France.*

A fashion writer asserts that in the photographs taken in the fifties and sixties, the matrons of the present day look older as photographed at the age of sixteen than they do now at the discreet period of thirty-eight. This is true, but the fault was not so much with the photograph as with the fashion of the hair; and thus John Leech's buxom maidens appear to our eyes nowadays quite middle-aged. The same writer asserts that sitters were in daguerreotypic days permitted "to wear the usual portrait-taking expression without any protest on the part of the camera manipulator." But when the exposure was a minute or more the photographer was glad to get anything so long as there were not two noses, four eyes, and half-a-dozen lips. Anyway, we have changed all this.

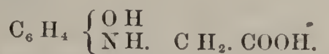
NOTES ON NEW DRY PLATE DEVELOPERS.*

BY COLONEL J. WATERHOUSE, I.S.C., ASSISTANT SURVEYOR-GENERAL OF INDIA.

I.—Glycin.

In the April number of the *Journal* for last year I noticed one of the new developers brought out by Hauff, of Feuerbach, called *Glycin;* and, as I have lately received some of it, an account of its behaviour under trial may be of interest, especially as it appears to have many valuable points in its favour as a good and very reliable developer.

Glycin appears to be identical with *p.* oxy-phenyl-glycocoll or para-oxy-phenyl-amido-acetic acid, with the formula—



$$C_6H_4\begin{cases}OH\\NH.\ CH_2.COOH.\end{cases}$$

and is prepared, according to Vater, by the action of chloro-acetic acid upon para-amido-phenol. It is, therefore, a chloro-acetate of para-amido-phenol.

The sample I have is a light cream-coloured granular powder, not altering readily in the air. It is not very soluble in water or in alcohol, but dissolves easily by the addition of caustic alkalies or their carbonates. The watery solution has a strongly acid reaction, but it is quite colourless. Alkaline solutions take a yellow tint, which disappears on the addition of sodium sulphite.

It is easily soluble in dilute nitric, sulphuric, and hydrochloric acids, the solutions being quite clear and colourless. It is not so readily soluble in weak bromine water, but the solution becomes colourless. Nitrate of silver first turns the glycin solution a turbid, dirty greenish-black; but it afterwards takes a violet tint, like slightly darkened chloride, and silver is precipitated, but not in the bright metallic form distinctive of metol. The same change takes place if the glycin solution be acidified with nitric acid before the addition of the silver salt, the silver precipitates and leaves a clear solution of a beautiful purple colour. With a solution of glycin made alkaline with potash, nitrate of silver gave at once a thick brownish precipitate.

The manufacturer recommends two solutions for developing, according as the negatives are required to be soft and detailed or hard and dense, and glycin is said to be especially suitable for reproductions of all kinds, photomicrography, &c. The formula for the first developer is :—

I.

A.	Glycin	4	parts.
	Potash	1·5	,,
	Sodium sulphite (crystals)	12	,,
	Water	100	,,
B.	Potash	10	,,
	Water	100	,,

For use one part of A is mixed with two parts B.

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* From the *Journal* of the Photographic Society of India.

Heat is required to dissolve solution A; but I find that on standing the salts have crystallised out in very pretty thin long hexagonal plates.

The second developer, for dense negatives, is as follows :—

II.

Glycin	5	parts.
Potash	25	,,
Sodium sulphite (crystals)	25	,,
Water	100	,,

diluted for use with three parts of water.

In preparing this it is well to first dissolve the potash in the water, then the glycin, and add the sulphite. The solution is nearly colourless or a dirty white, and does not readily change by keeping, either in colour or in its developing power. I have not yet ascertained its full keeping powers.

Both of these formulæ give powerful and effective developers yielding images of great density and brilliance, with clear shadows and perfect freedom from stain. Like other para-amidol-phenol developers they require good exposure, and the density depends a good deal upon the length of time the plate is left in the solution, as is also the case with ferrous oxalate and the sulpho-pyrogallol developers. The action of glycin is slow compared with amidol and metol, but not inconveniently so, and there is not the same tendency to a general veiling over the image.

I find both developers quite suitable for ordinary landscape work, the first formula being perhaps the better, while for copying the second is more suitable. They also work very well with orthochromatic plates. I have not yet tried them for instantaneous work, but with a suitable very rapid plate and a large aperture of a quick-acting lens they would probably answer. Several plates can be developed in a batch of developer without any marked change in it. The stability of the glycin, both dry and in solution, the density and clearness with which it works, and the latitude that appears to be permissible in exposure, seem likely to give it a very great advantage over para-amido-phenol hydrochlorate and other new developers lately introduced. Largely diluted it would probably be an excellent developer for lantern slides or for bromide paper.

A voltametric examination of the developer, made up according to Formula II., shows that it evolves hydrogen more vigorously than any other developer I have yet tried, and this would appear to favour the hypothesis that developing power is dependent, other conditions being suitable, on capacity for evolving hydrogen.

The dilute solution made up in the above proportions contained :—

Glycin	1·25	parts.
Potash (anhydrous carbonate)	6·25	,,
Sodium sulphite (crystals)	6·25	,,
Water	100·00	,,

This solution was first electrolysed in the tube voltameter described in a previous paper, with platinum electrodes, using, as before, a battery of four gravity-cells. the current being 280 milliampères with a pressure of 4·2 volts, the resistance of the galvanometer being 1 ohm. The current through the voltameter at starting was 80 milliampères with a pressure of 3·2 volts, and in twenty minutes it had decreased to about 75 milliampères and 3·15 volts. At starting the solution in the tubes and the outer vessel was quite clear and colourless—the temperature about 72·5° F. When the current was turned on, the evolution of hydrogen was very brisk, and the yield was — in five minutes 2·5 c.c.; in ten minutes 5·4 c.c.; and in fifteen 7·6 c.c.

This corresponds very closely with the results obtained from an ordinary ferrous oxalate developer containing four drops of 10 per cent. solution of potassium bromide to 120 c.c., or about one drop to the ounce. In this case 5 c.c. of hydrogen were evolved in ten minutes, the current with the same four-cell battery and voltameter being about 75 milliampères with a pressure of 3·25 volts.

The solution in the oxygen tube turned a bright yellow, and the anode was surrounded by a dense layer of yellow solution. The general body of the solution in the outer vessel did not change colour, nor did that in the hydrogen tube. At the end, when the oxygen tube was removed and the solution in it mixed with the remainder, the whole was a bright yellow with a slight blue fluorescence.

With silver electrodes, the evolution of hydrogen was not so brisk, possibly owing to the immediate formation of a film of oxide on the anode.

With the same battery the current through the voltameter at starting was about 80 milliampères with a pressure of 2·7 volts, and in twenty minutes it decreased to 75 milliampères with 2·5 volts. The yield of hydrogen was—in five minutes 2·2 c.c.; in ten minutes 4·5 c.c.; and in twenty minutes 9·3 c.c. The anode was covered with a flaky deposit of silver oxide (?), and ribbon-like streams of a turbid yellowish solution were given off above and below the anode plate. As in the case of the platinum electrodes, the colour of the solution in the outer vessel was not much changed; and when the solutions were mixed at the end the mixture was slightly turbid and not such a bright yellow, but it was also fluorescent.

Dr. Eder, who reports on glycin in the *Photographische Correspondenz* for October, 1892, speaks highly of it, and gives a formula for a glycin-soda developer, as follows :—

Glycin	3	parts.
Sodium sulphite	15	,,
Crystallised soda	22	,,
Water	200	,,

The solution can be used at once, and keeps unchanged for a long time in closed bottles. It gives clear and soft negatives, and by lessening the quantity of soda, or diluting the solution, the negatives will be more transparent. By adding bromide of potassium even decided over-exposure can be remedied.

Baron von Hübl has found glycin a very valuable developer for collodion-emulsion plates when made up according to Formula I., diminishing the water to 80 if greater intensity is required, or mixing one part of solution A with three to five parts of B, or diluting the normal developer, if less density is required. He says that this developer gives with collodion-emulsion-plates perfectly clear shadows, a good and very compact deposit, rich half-tones, and a surprisingly beautiful gradation. This agrees with my own experience of para-amido-phenol hydrochlorate as a developer for collodio-bromide emulsion plates.

II.—Amidol.

I have lately received a fresh sample of amidol, which differs in a very marked degree from that I received first. It is more stable, and its solution does not discolour so quickly; but it does not seem to be quite so good a developer in some respects, there being more difficulty in getting density with it. The issue of these different qualities of amidol no doubt accounts for the varied opinions on its merits given by different workers.

III.—Metol.

I have not worked further with metol since my last paper on it. I have, however, noticed one fact regarding it which may be worth recording, and that is that old metol solutions can easily be recognised by the strong smell of phosphorus they evolve. I observed this smell in testing it with various re-agents. Metol is said to be the sulphate of mono-methyl-para-amido-meta-kresol, but is possibly a phosphate or phosphite of this compound. The smell of phosphorus is most decided and unmistakable.

IV.—Guaiacol, Phlorol, and Cresols.

Since my last note, in the January number, was written I have tried two fresh samples of guaiacol, one of them purified from potash and the other an ordinary sample of English orign, obtained locally, which seems to be very pure, judging from its freedom from colour when mixed with potash and the slowness with which it developes. Both these samples have, however, undoubted developing powers, and it seems difficult to obtain a sample of perfect purity and without any developing power, unless one prepares it for oneself, as Messrs. Lumière have done. It is an operation requiring more care and time than I can give it at present.

I have also tried some other derivatives of creosote, among them cresol, para-cresol, and phlorol, and find that, mixed with potash, they are all capable of developing an image on a dry plate, though not practical developers. Phlorol seems the most active, but cresol developes without difficulty, while para-cresol only gave a very weak image in two days. The solution of the latter in caustic potash has a strong orange colour, which deepens by exposure to the air. It remains to be seen if this strongly coloured solution may be turned to useful account in conjunction with other developers. In this case also it is probable that the developing power may be due to impurities or oxidation-products formed during the progress of development.

As it seemed possible that the impurity which confers on these phenols the property of developing might be pyro-catechin or some homologous substance, an experiment was tried to ascertain how small a quantity would suffice to bring out an image. It was found that a solution of $\frac{1}{50000}$ of pyro-catechin in a 1 per cent. solution of caustic potash (or about 1 grain of pyro-catechin in five pints of a 5-grain solution of potash), was sufficient to develop a distinct but very weak image. It is possible that even a smaller quantity would suffice, and, under these circumstances, it may readily be understood how enormously difficult it is to obtain these complex derivatives of wood-tar and creosote absolutely pure and free from substances which have developing power.

(To be continued.)

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

4,814. Baden Fletcher Smyth Baden-Powell, 8, St. George's Place, London, "Improvements in Photographic Cameras."—*6th March*, 1893.

4,951. Sydney Pitt, 24, Southampton Buildings, Chancery Lane, London, "Improvements in Photography by the Use of New Developers." (The Chemische Fabrik auf actien vorm. E. Schering, Germany.)—*7th March*, 1893.

5,035. George Conrad Jelpke, trading as the Mount Company, 50, Elfort Road, Islington, London, "An Improved Case or Chamber for enclosing and protecting Photographic Printing Frames and similar apparatus, with their contents, during the process of photographic printing and the like."—*8th March*, 1893.

5,219. John Theobald, 43, Farringdon Street, London, "An Improvement in Photographic Cameras."—*10th March*, 1893.

5,232. Thomas Edward Corney Wilson, 6, Lord Street, Liverpool, "Improvements in or relating to Photographic Cameras."—*10th March*, 1893.

Specifications Published.

3,014. *18th February*, 1892.—"Photographic Apparatus." —H. J. B. Theroux, of Boulevard Henri IV., Paris. France.

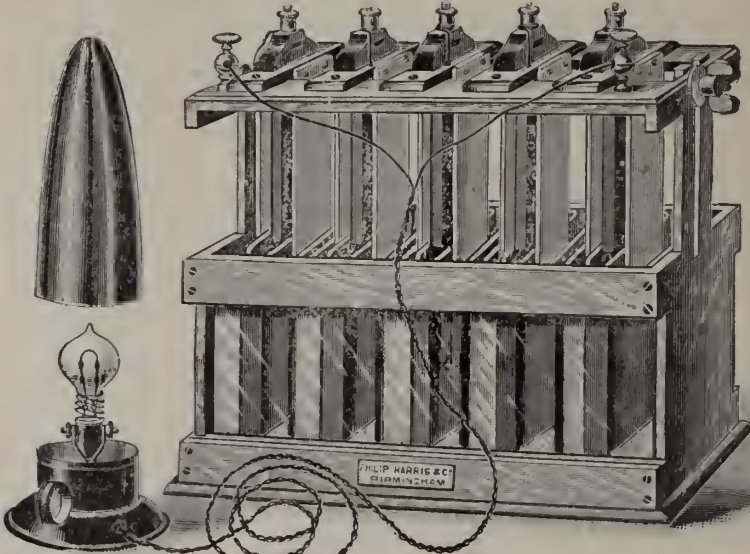
Relates to sun-freed photographic apparatus. The baths into which the plate is dipped after exposure are arranged on a straight line, the plate being carried by a pivoted carrier operated by a rack movement. Each carrier, on lifting the plate from the respective bath, holds the same under a rose automatically opened by a carriage, water thus flowing over the plate, which is then transferred to the next carrier, and immersed in the next bath. The person to be photographed stands in front of the machine, and draws out a handle, which carries back the carriage, lifting the cover from the dark chamber, and so exposing the plate, the lens being uncovered on dropping a coin into a slot. The carriage then moves onward by means of a weight, so that the plate drops into the first carrier, is dipped into the first bath, and undergoes the successive operations necessary for producing a finished photograph by being transferred from carrier to carrier and from bath to bath, until the carrier arrives at the end of its course, when the operating racks are thrown out of gear. An incandescent electric lamp is used for illuminating the person just at the time of exposure; also an electric heating device is used for drying the photograph.

Printed copies of the full specifications of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

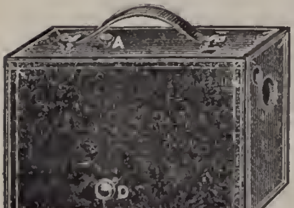
APPARATUS.

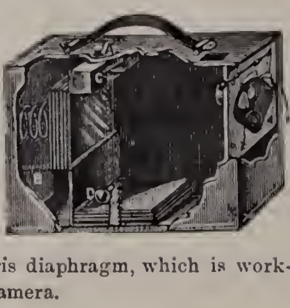
We had an opportunity last week of visiting the new and extensive premises of Messrs. Philip Harris & Co., of Birmingham, who, long known as extensive manufacturers of chemicals, have recently erected workshops for the manufacture of all kinds of photographic apparatus. Among other novelties is their new electric lamp for dark-room use, which is figured below :—

The battery is a modified Bunsen (charged with bichromatic solution in the inner cell, and with dilute sulphuric acid in the outer ones), and consists of five cells, the carbon and zinc plates of which can be raised bodily from the liquids when the battery is not in use. It is, therefore, calculated to remain active for the longest possible time with one charge, and if it were not so a fresh charge can be introduced at the cost of a few pence. The lamp is of five-candle power, and is covered, when wanted for the dark room, with a ruby glass cone.



The same firm also makes the Cytox hand camera, which is here shown both in elevation and section. The most noticeable feature of this camera is its clever changing arrangement, in which simplicity is carried to an extreme point. The plates are held in sheaths, and are pressed together by means of a spiral spring, the front one being opposite to the lens. When this first one has been exposed, a button on the outside top of the camera, marked A, is depressed, when the plate immediately falls flat on the floor of the box, and this happens to each plate in succession. The shutter is of extremely good design, and the amount of light entering the lens is controlled by an Iris diaphragm, which is workable from the outside of the camera.





PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

Technical Meeting, Tuesday, March 28th.—"A Demonstration of Platinotype Printing," by Mr. F. Hollyer.

Affiliation of Societies.—Meeting of Delegates at 7 p.m., Friday, March 24th, at 50, Great Russell Street, W.C.

London and Provincial Photographic Association.

March 15th.—Mr. C. E. Atkins in the Chair.

A hand-camera was shown by Messrs. Newman and Guardia, working at speeds variable from 1-100th up to half a second.

This being lantern night, slides were shown by Messrs. Davis, R. Beckett, and Wilks, of Birmingham, together with a very large collection sent by the Cape Town Photographic Club, and representing the work of the several South African societies.

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Putney Photographic Society.

Ordinary Meeting, held at the Society's Rooms, Charlwood Road.—Dr. W. J. Sheppard in the Chair.

Mr. Henry Kimber, M.P., was elected a vice-president, Mr. W. R. Few, a member of Council, and Mr. F. W. Thompson, an ordinary member of the Society.

Mr. W. E. Debenham gave his lecture and demonstration on "Transparencies by the Carbon Process," this being one of the papers placed at the disposal of affiliated societies by the Central Committee. Mr. Debenham commenced by fully explaining the theory of the process, illustrating his remarks by diagrams drawn on the blackboard. He claimed that for lantern slides carbon transparencies were unbeaten, as the process gave great range of gradation, clearness in the high lights and transparency in the shadows ; and further, that any colour could be obtained with absolute certainty. The process was also greatly used in the trade for reproducing negatives for enlargement, photogravure, &c., for which it had been found to be very suitable. The tissue might be prepared by the user without much difficulty, but amateurs would find it more convenient to buy it ready for sensitising, in which state it would keep for a long time. They could

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readily sensitise it themselves by immersion in a solution of bichromate of potash; this should be done shortly before use, as the tissue will not keep many days when sensitised, even when precautions are taken to store it under the most favourable conditions. Mr. Debenham then proceeded to explain and demonstrate the method in detail, from the preparation of the tissue to the final transparency, giving many valuable hints of a practical nature, which were greatly appreciated by those present, who, throughout, followed Mr. Debenham's remarks with much interest, and, at his invitation, asked questions as the demonstration proceeded. It is almost needless to say that the whole of the process was brought very fully and clearly before the members, both theoretically and practically. Specimen transparencies and reproduced negatives, illustrating the lecture, were handed round, and the results fully bore out Mr. Debenham's claims for the beauty and utility of the process.

Hackney Photographic Society.

Tuesday, March 14th, 1893.—Mr. E. Puttock presiding.

Members' work shown from Messrs. Beckett and Dean.

Question: Is it advisable to back all plates taken out?

Reply: Yes, it is a great advantage, especially when light is strong; in no case could it do harm.

Question: What is the most reliable backing?

Reply: Caramel and burnt sienna, as per formula given last June.

Mr. Nunn mentioned red blotting paper, and Mr. Gosling carbonised manifold paper as not bad substitutes.

Mr. R. Beckett said that films were better than unbacked plates; but

Mr. F. Houghton found no halation on films exposed last week, 1-6 sec.

The Chairman then read a paper by Dr. Paul Jeserich entitled "Detection of Crime by Photography." Whilst the lecture was being read, a series of slides was shown through the Club lantern as alluded to; these were taken from subjects forming criminal cases in Germany. Dr. P. Jeserich treated his subject under the heads of Hairs, Blood, and Forgeries. Hairs, he said, from the same individual were easily recognisable. Human hair and blood were different from those of other mammals. He instanced cases where his evidence resulted in acquitting some people accused of murder, and pointed suspicion on others, to which they ultimately confessed. Forgeries executed in different coloured inks, though the unassisted eye could not detect it, were photographed by *his* process (presumably coloured screens and colour-sensitive plates). They clearly showed the original handwriting faintly, with the additions strongly contrasted. Spectra of blood were shown which were apparently identical, urging as a strong point that no two substances give exactly the same spectra.

In a short discussion which followed.

Mr. Dean objected to the too dogmatic way in which the paper was written, claiming that some of Dr. Jeserich's assertions were stronger than the stated facts justified, and that he ought not to assume that human hairs from the same individual have the same size and the same shaped roots; that a cut hair grows from the middle of the *cut* end; that blood corpuscles from the various orders of the mammalia are *so very* dissimilar from one another in size; that no two spectra are the same. Mr. Dean quoted a reliable authority that the differences between the spectrum of red ink and that of blood, even under very high powers, are undiscernible.

Slides from Messrs. Beckett, Hull, Smith, and Salmon were then put on the screen.

West London Photographic Society.

On the 14th inst., Messrs. Hodges and Horton read a paper on the "Processes Applicable to Lantern Slides, and Hints on the Management of the Lantern." Omitting the first part of the subject as likely to occupy too much time, the authors proceeded to enumerate the optical and other desiderata of a good lantern, and after reviewing the history of lantern illuminants, and dwelling briefly upon the various forms of oil lamps, including the improved lamp of Stock, they proceeded to describe in detail the various types of lime-light appliance, including the oxy-spirit, blow-through, mixed jet, and oxy-ether, and to show samples of all but the last in operation.

The practical part of the paper was notable for the interesting series of comparisons instituted between discs thrown on the screen from two lanterns placed side by side employing in succession a 4-wick oil lamp of ordinary make, a Stock lamp, an oxy-spirit jet, a blow-through jet, and, lastly, a mixed gas jet. Each illuminant taken in the order enumerated above gave a distinct advance in light-giving power as well as in whiteness of the light.

At the conclusion an interesting series of slides, belonging to Mr. Le Marchand, made by the albumen process were shown.

Liverpool Amateur Photographic Association.

On Thursday evening, 16th inst., Mr. F. Hope-Jones delivered a lecture on "Emral," the deserted mansion of the Puleston family on the River Dee, some 15 miles south of Chester. Photographers are always on the look out for fresh subjects at which to level their cameras, and this interesting ruin provides picturesque material for them. In addition to this its historical associations are important and form an excellent subject for a lantern lecture. A vote of thanks was accorded to the lecturer on the motion of Mr. G. B. Newton.

Newcastle and Northern Counties Photographic Association.

The monthly meeting was held on the 14th inst., at the Art Gallery, Mr. M. Auty, Vice-President, in the Chair.

Messrs. E. G. Lee and J. Brown demonstrated the process of copying by artificial light, and exhibited numerous examples, as also did various members.

Social or Conversational Meeting, Tuesday, March 28th, at 7.30 p.m.—Members are asked to bring prints, negatives, apparatus, or anything which may promote useful discussion, and the question-box will be on the table.

Birmingham Photographic Society.

March 14th.—Meeting in the Y.M.C.A. Room.

Three sets of slides kindly lent by the Liverpool Amateur Photographic Association, entitled (1) "Illustrated Boston," (2) "In and around Columbus," (3) "The White Mountains of New Hampshire," were shown on the screen, and ably described by Mr. Middleton with the help of notes which accompanied them. Very interesting they were, showing old and new buildings, landmarks and busy streets, while the third set were perhaps the more delightful pictorially. Fine mountains, streams, and wooded scenery evidently abound in this charming district.

The CHAIRMAN expressed grateful thanks to the Liverpool Amateur Photographic Association, to which the meeting cordially responded.

NOTTINGHAM MECHANICS' INSTITUTION CAMERA CLUB.

THE usual meeting was held in Room No. 75, under the presidency of Mr. W. J. ABEL, on Friday evening last. Amongst others present were—Mrs. Brown, Mrs. Fraser, Miss Clarke, the Misses Shaw, Messrs. W. J. Abel (Clerk to the School Board), T. Hodgson, Fewkes, H. Derry, E. Gordon, Gunn, Clarke, Flowerdew, Young, Jackson, Warsop, Hartley, Warham, Wilson, Stanton, Gisborne, and John T. Radford (hon. sec.).

A practical demonstration of the new developer "amidol," was given by Mr. L. E. MORGAN, of London, in the course of which the attention of the members was drawn to the simplicity of making the solution, its keeping capabilities, absence of stains, clearness of lights, &c. The lecturer showed, in actual practice, the method of employing it in the development of negatives, bromide prints, and lantern slides.

Votes of thanks were passed to Messrs. Feurst Brothers, of London, for their arrangements, and to Mr. Morgan for the clear and useful manner in which he had conducted his demonstration.

DERBY PHOTOGRAPHIC SOCIETY.

Usual Monthly Meeting, Tuesday, March 14th.—Mr. KEENE presiding.

FIVE new members elected—Messrs. Watson, Birkinshaw, Langdon, White, and Watkin.

A demonstration on the "Amidol Developer" was given by Mr. MORGAN, of London, which passed off very successfully.

Votes of thanks to Messrs. Morgan and Keene were passed, this concluding the meeting.

* * *

PHOTOGRAPHY has a curious knack of invading established industries in the most unexpected fashion. The latest example is the way in which it has established itself as an adjunct to the art of window-ticket writing. When the ticket has much writing on it, and many copies are wanted, it has been found cheaper to photograph and print collotype proofs from the negative instead of making the duplicates by hand. A firm of tobacconists' sundrymen was the first to introduce the innovation in connection with the cutting rates which certain tobacconists have adopted. These photographed tickets, setting forth the various brands and prices, are sold for the use of competing tobacconists. Of course the ticket writers do not like their rival, and the best thing they can do is for them to become photographers and do their own photographic work.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

B. B.—1. We do not quite know what you mean by your first question. Enamels (*i.e.*, burnt-in photographs) are generally mounted in velvet-lined morocco cases, as in the case of miniatures. 2. Yes, it is quite possible, and has often been done. We published last year two specimens of flash-light photographs. Slingsby, of Lincoln, has one of the best methods, and he has written a book on the subject, which is published by Marion & Co., of Soho Square.

META.—We are about to publish an article on the subject, in which we shall deal with the entire process. This may probably appear next week, if space permits.

DISTORTION.—The group has evidently been taken with a wide-angle lens. This would not have been of so much consequence if the figures had been fewer in number and had been kept to the centre of the plate. Those at the sides have their forms widened, as a matter of necessity. Photograph a row of billiard balls under the same conditions, and the centre ones only will be spherical.

M.—Increase the quantity of water and the mountant will dry less quickly; any increase in the amount of glycerine would lead you into difficulty.

COMMERCIAL TRAVELLER.—See Robinson's book, "Photography as a Business," which will give you all the required information.

H. C. S.—It will be better to throw the old negatives away. If you use the material for cover glasses for lantern slides, you will find them far too thick. They will absorb too much light, and in many cases prevent the slide being employed in a carrier of ordinary size.

SPECTRUM.—Plenty about this and Lippman's results may be found in our back numbers, and to these we must refer you.

C. K.—Many thanks for your very kind offer, which we shall accept with pleasure.

JAMES.—For lantern-slide colouring the oil tubes used by artists are by far the best form of pigment to employ. Only those naturally transparent can be used. It is sometimes advantageous to use the aniline dyes for preliminary tinting. The work is difficult and cannot be learnt all at once.

NEMO.—We are replying to you by post.

K. L.—Fusible metal will probably do what you want. Its price is about 5s. per lb., But we are quoting from memory, having no chemical list at hand in which the metal appears. Its melting point is generally about 140° Fahr.

OMEGA.—The "ripple marks," as you call them, on your negative we believe to be due to the circumstance that development has been much prolonged, and the developing dish has been kept perfectly still. We can produce this appearance at will by the use of a much diluted developer and a still dish.

DRY PLATES.—We have heard little of late about Dr. Hill Norris's collodion dry plates. They were to have been placed on the market three years ago, and we understand that a large factory has been erected for their production. Possibly your inquiry may lead to some explanation by those who have the enterprise in hand.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1804. MARCH 31, 1893.

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NOTES.

THE Seventh Annual Photographic Conference and Exhibition of Photographs and Lantern Slides will take place, under the auspices of the Camera Club, on Wednesday and Thursday, April 12th and 13th, Captain Abney acting as President. The Conference and Lantern Slide Exhibition will take place, as heretofore, at the Theatre of the Society of Arts, John Street, Adelphi, and we print the programme on another page. The annual Club Dinner will be held at the Monico Restaurant on April 12th.

THE *Shashin Sowa* (Photographic Chat) is a new monthly paper, published in Japan, and by the courtesy of its Editor we have received a complete set of the numbers which have already appeared. Professor Burton contributes to the first of these a few words of encouragement, and points out that, although Japan now has two photographic publications, there is ample field for them, especially if run on somewhat different lines.

PROFESSOR BURTON also says that Japan is the only country out of Europe, or the United States of America, which has started a journal devoted entirely to photographic matters. This was true enough when the words were written, but we have since received the *Australian Photographic Journal*, which is also published monthly, and which has quite a flourishing aspect.

THE forty-seventh annual report of the Harvard College Observatory states that the number of photographs taken with the eight-inch Draper Telescope is no fewer than 2,777, and the number taken at Peru with the Bache Telescope is nearly 2,000. The examination of the negatives has led to the discovery of a large number of interesting objects, and much valuable material has been accumulated.

MR. JOHN CARBUTT, the well-known American plate-maker, has placed upon the market a non-halation plate. This does not depend for its virtues upon multiple coating, as in the case of the Sandell plate in this country. The plate has a non-actinic medium in optical contact with its back, and this can be easily stripped off after or during development.

THE Leicester Photographic Society's Exhibition took place on Wednesday and Thursday last week, and met with great success. It was opened by the Mayor (Alderman Underwood), in the presence of a large number of visitors, and he pointed out that the people of Leicester should feel indebted to the members of the Society for the pains they had taken in giving them all such an artistic treat. He concluded by congratulating the members upon the beauty and excellence of the work displayed.

WE have received from Messrs. Mawson & Swan a copy of their neat little "Exposure Note-book," which takes up no more room in the pocket than a folded letter, and costs but threepence. It is a useful little reminder to have at hand, for, besides its memoranda space, it contains valuable formulæ.

WE learn that Messrs. Mawson & Swan's factory at Newcastle-on-Tyne has been doubled in capacity during the past twelve months, and that the new buildings are now in full working order. A largely increased trade has rendered these alterations imperative, and the demand for plates and bromide paper keeps all hands busy. The Mawson plate always had the reputation of being one of the quickest procurable, but now its speed has been still further increased.

ON Saturday evening last Sir John Lubbock gave an address at the Working Men's College, Great Ormond Street, of which institution he is the Principal. "Political and Personal Reminiscences" was his subject, in the course of which he said that he thought it might interest his audience to know that he had taken what was probably the first photograph ever produced in this country. When he was a mere boy one of his father's friends had sent over a camera and all necessaries for taking a photograph, and he had been the one to remove the lens.

ONE of the latest recruits to the ranks of the cartoonists pines for what at present seems to be the impossible. He wants someone to invent a method for reproducing pencil work. The Meisenbach process does not satisfy him, because that entails the necessity of a grey tone all over the paper, and what he would like is a method which will enable the artist to leave the slight pencil sketching under the pen-and-ink work, and to produce the soft and refined effect it gives. To use his own words: "Often and often I think I have got the likeness or expression I want, but when the ruthless indiarubber has passed over the face nothing is left but a hard, unpleasant stare, like the Duchess's cat in 'Alice in Wonderland.'"

THERE is certainly no process which will do this. The effect which pleases the artist so much is due partly to the difference in tint and partly to the difference between the touch of a rounded and a sharp point. If the pencil marks could be made to print up, the result would be far from satisfactory. Photography only recognises differences in the thicknesses of lines, and takes no notice of differences in tone. Artists who produce their effects by differences of gradation in tint are sure to be disappointed when their drawings are reproduced. Contrast can only be secured by gradations of thickness. It is owing to the want of attention to this important point that "process," in many instances, fails to make the reproduction equal to the original. But the fault is due to the artist and not to the photographer.

THE organ of the jewellery trade notes a new application of photography. A fashion has been started in Paris of having photographs on enamel, mounted as bracelets. These photographs are prepared by a special process, and, says the writer, "they can be had in any size, and ought to oust the senseless French garret-born miniatures of nobodies." The journal in question thinks that if they were brought forward they would form an attractive novelty, especially if introduced at once, seeing that miniatures are "*en tout rage*, but have not yet been in long enough to tire the followers of extreme fashion." Of late photographs on enamel have been somewhat neglected. Only a few practise the art.

BY a decree dated December, 1892, the *Société Française de la Photographie* has been recognised by the French Government as an establishment of public utility, and its rules and constitution have been officially approved. The text of the rules is published in the *Bulletin* of this month, from which it appears that the government of the Society is very similar to that of the Photographic Society of Great Britain, with the difference that its president, vice-president, and Council are elected every three years instead of annually. The greater portion of its income is derivable from the sale of the *Bulletin*, the organ of the Society. With the English society the *Journal* is a loss. On the other hand, the French Association has no exhibition yielding a large profit.

ACCORDING to the *Graphic*, an enterprising member of the present Parliament is endeavouring to make himself familiar with the outward appearance of his fellow-M.P.'s, by compiling a small library containing their photographs, with the names of their constituencies written beneath. This is to avoid any unparliamentary breach of etiquette in referring to a member by name, or in associating him with a constituency which is not his. If this plan should become general, it will be a good thing for photographers, for there are six hundred and seventy members, and each would want that number of photographs, save one, to make his library complete.

"How did he—*i.e.*, Mr. Edwards-Moss, the Oxford aquatic coach, cure you of that fault?" asked a representative of the Press of one of the Oxford Eight. "Why, he got into my place, and showed me a caricature of my way of rowing—and the best way too." Here is the germ of a photographic method which some day may be practically worked out in the training of the 'Varsity Eights. Let each man whose rowing is faulty be photographed on the Marey system, and the series of photographs be placed in the electric zoetrope. If the sight of an absolute facsimile of his body in action will not cure an oarsman of his faults, nothing will.

A VERY singular book, illustrated by photographs, has just been published in Paris. It is entitled "Un Chanoine Enteré par le Diable," and the extraordinary feature of the volume is that the personages and scenes are photographed from nature! We have not seen the book in question, but we must confess our curiosity is a little excited; for if the title accurately conveys the nature of the letter-press, the photographs of the personages, especially of "le Diable," ought to be highly interesting. Anyway, *L'Imprimerie* confesses it has not words sufficiently eulogistic to adequately praise its merits. It is a pity that 350 copies only will be printed, as one would have thought such photographs should have an unlimited circulation.

PRACTICAL REMARKS ON LANTERN SLIDE-MAKING.

BY J. K. TULLOCH, M.B.

(*Concluded from page* 183.)

MY method of producing carbon slides is as follows :—I cut a dozen or so pieces of tissue by means of a tin shape to exactly three and one-eight inches square. I make a solution of bichromate of potash, one ounce in thirty ounces of water, and place the tissue in this—"over the head," so to speak. When they are quite soft and limp I take them out by one by one, and place them face down on a piece of plate glass, and by means of a roller squeegee drive off the free solution hanging about them. I then take them from the glass, and place them face up on a blotting pad. Upon this they are placed in a locked press, and in the morning they are generally dry and ready to print. Much stress is laid upon the rate of drying, and being in a room free from fumes of gas. Working in this way, I have never had any trouble ; and even in a moderately small press, if it is not damp, the tissue will dry in a night's time, and be out of the way of light, fumes, or any other injurious influence. I have never found it necessary to dry the tissue on collodion plates. In the morning the tissue is printed under the negative. In mounting the tissue on the glasses for slides I had two troubles. First, the tissue would sometimes wash up, and, secondly, air bells would get between the tissue and the glass in spite of everything I could do. I cured these faults as follows :—If the glasses are thoroughly scoured with a clean rag and common whiting under the tap, and the surface not touched again with anything under the sun till the tissue goes on, it will stick like glue. As for the air bells, mount the tissue on the glasses under water which has been heated and then allowed to cool, and there will be no more trouble. *En passant*, I may say that to those who are annoyed with air bells under their gelatino-chloride prints the same method will put an end to their troubles.

In developing carbon slides, beware of taking too hot water to them. I am convinced that we would hear less of reticulation if more caution were used in this particular. As I am making no pretence to a complete guide to carbon slide-making, I content myself with these few practical remarks on the process. Given a suitable negative (and too much stress cannot be laid upon this), carbon slides, in my opinion, cannot be beaten. If it be asked, What is the special kind of negative ? the answer is, that the negative must be extremely dense, with good gradation and very clear shadows. A hard black and white negative useless for any other process is about the thing for a carbon slide.

I may say that transparency in the shadows is the chief virtue in a carbon slide as against the other processes. Mr. Baird will pass through one or two carbon slides unstained.

I have little to say on the gelatino-chloride slide. Altogether, I have not used more than four or five dozens of this plate, and, while the results were generally very fine, the developers were a pest to make up, besides being somewhat expensive. The variety of colour is very considerable, but not very thoroughly under control—at least, that was my experience. I was not so much taken with the process as to take to it as a standard method of slide production. Mr. Baird will show a few on the screen.

As to gelatino-bromide, that being the general method of slide production in use by the great bulk of amateurs, I would make a few general remarks only. In the first place, given a good negative, I have produced first-class slides by almost every advertised brand of lantern gelatino-bromide plate. At this moment, if I had to produce a slide specially fine, I would only stipulate to have the information of the maker's name. I have gone into this question pretty thoroughly, and am convinced there is little to choose between the various brands—I mean in the possibility of getting good slides from them. When I hear many complaints about bad plates, I always feel inclined to ask for a sight of the negatives which are being printed from.

There is a very widespread idea that a good slide can be made from any kind of negative by simply timing the exposure properly. This, I think, is erroneous. If you want clear, sparkling, high lights with rich luminous shadows, you must have a tolerably vigorous negative with the necessary gradation in it.

However it comes about, I find I get better results by intensifying my negatives first. I bear this in mind in development, of course, and am content with a somewhat feeble image. I think I see all through better what I am doing this way. So long as you can see easily through the plate during development you are not working in the dark, but long before the negative is thick enough to do without intensifying, the most of the plate is absolutely opaque, and you cannot tell how far the process has gone, perhaps much further than you want. I think the great secret of slide-making is in having a good negative. To keep up a kind of consistency, Mr. Baird will pass a few gelatino-bromide slides through the lantern.

The next process upon which I would make a few remarks is known as the powder process. I am not aware that any one actually makes his slides by this process ; but, as it has a certain interest and is an exceedingly beautiful process, I have made a fresh slide and will say a few words on the subject. To those who do not know anything about it, I may briefly say that the process is this :—A clean glass slide plate is coated with a watery solution of gum arabic, honey, and bichromate of potash. The plate is dried on the top of the dark-room lamp, and immediately exposed to daylight under another transparency. After a variable time depending on the light, from twenty seconds in direct sunlight to minutes in the shade, the plate is taken to the dark room, removed from the frame, and a small quantity of impalpable powder placed upon the surface. A fine soft camel's-hair brush is now used to spread the powder over the plate, and in a few minutes it will be observed that the powder begins to adhere to the surface of the plate in an irregular way—in fact, it is a picture that is being developed. The explanation of this apparently extraordinary phenomenon is simple enough. The solution of gum arabic and honey is ordinarily very much prone to absorb water from the atmosphere and become sticky. When the bichromate of potash is added to it and the sun acts upon the mixture, it loses this property of becoming sticky. It follows from this that a plate coated with the mixture and exposed under a transparency loses its adhesive nature in proportion to the effect of light upon it, so that those parts exposed to the sun take on no powder, but remain pure glass, which makes your high lights; on the contrary, the shadows having been protected from the light room get adhesive when exposed to the air and hold on to the powder when it is brushed over it. Since a transparency must first be produced by some other means, the powder process would seem to be "a roundabout road for a near cut"; but do not forget, first, that a powder picture is permanent; secondly, you may develop at one part and leave another soft and hazy; and, thirdly, you have absolute control over the colour.

Having nothing else beside me at the time, I developed the picture shown with common soot from the chimney, which, as you will see, gives a kind of sepia tint. If any of you have not worked this beautiful process, let me urge upon you to spend some of your spare time upon it when the light gets good. I can promise you a real "eye-opener," as the Americans would say, when you see the picture develop the first time. It is simply astonishing. Please do not judge the capabilities of the process from this specimen. When I was working at it three years ago, I made two or three dozen of beauties, but have since given one away here, and another there, till I had not one slide left. I had, therefore, to make this one, and one cannot be expected to turn out a perfect slide at the first shot. Plumbago is often used as a developing powder; to my mind it gives an unpleasant colour to a transparency. There used to be sold a powder for this process, for the production of burnt-in enamel—just the very thing for transparencies. I wish I could have shown you a transparency developed with it—a beautiful, rich, soft photographic purple. I do not, for a single moment, imagine that any one would adopt the powder process as a regular method of making lantern slides, but a trial of this beautiful process would well repay the time and trouble spent on it.

Alpha Plates.

I have done a good deal with Alpha plates, and like them immensely. I have two practical hints to give which might be of service to those intending to try them; and the first is, that a very much softer and superior image is developed with carbonate of potash and hydroquinone than when the caustic soda is used. The second point is, that superior tones are got by simply adding a little gold to an alkaline fixing bath than by using a separate toning bath, or even the combined toning and fixing with sulphocyanide.

I had intended to say something on albumen slides; but it occurs to me that already this paper is long enough, and the days of albumen too long passed to be of much interest. It is a difficult process to work, but yields magnificent results; not, however, better than some of our modern processes, which are infinitely less trouble. In conclusion, the opinion which I hold at the present time is that, for the amateur, commercial gelatino-bromide in skilful hands is everything that can be desired for cold tones. If warm tones be required, let him make his negatives suitable for carbon, or, failing that, use Alpha plates. I have already said that I attach ten times the importance to the negative that I do to the method of slide-production.—*Dundee and East of Scotland Association.*

CRITICISM.

BY ALICK COOPER, R.C.A.

COMPOSITION. — Lectures, papers, and essays on this very necessary but difficult-to-be-explained subject have been appearing in many of the photographic journals lately. It is a very good thing that people have waked up to the fact that they felt themselves wanting in this direction; but what strange methods are advanced by some of its would-be instructors! Do not imagine for a moment that I am going to join their ranks and weary you with a long dissertation on the subject. All I wish to say or explain on the question is that composition really has hardly any laws—positive laws, that is—at all; all that there are are practically negative rules. You cannot lay down any law as to how to arrange and paint, or, for the matter of that, photograph, a good picture, but you can call attention to any number of ways by which you may succeed in producing a bad work. Composition is, after all, in a very great measure taste, and taste, as we know, accepts no positive laws, and composition may be put down as somewhat analogous to what is known in literature as style, and is the employment of such means, as to the user may appear to be the best, in order to put his picture, or story, clearly and comfortably, to the spectator or reader. There are no directions laid down, or even understood, as to *how* you *should* enter a drawing-room, but you could fill a small volume with a description of the ways and manners in which you should *not* enter the room. It was Sir Joshua Reynolds, I think, of whom the story is told of a young fellow being brought to him with a view to his studying art, and the fond parent suggests to Sir Joshua, that perhaps the lad could be of assistance, by painting his backgrounds for him; and, in reply, he gets the information that if the would-be artist was clever enough to paint his (Sir Joshua's) backgrounds, he would be quite equal to painting the entire picture. So you see, if there were any definite rules, this boy might have been taken on at once, and then, when the great painter had finished a portrait, he could have handed the canvas over to the student with instructions to paint the background according to rule 35 or 142 "in the book," as the case might be.

As a fact, such artists as do compose well—and they don't all, by any manner of means—do so, as it were, intuitively; they have taken the trouble to learn, from every available source, the things that should not be done, and consequently their work, showing no faults of bad composition, necessarily becomes good composition. But if you ask one of these men why he does a certain thing, he cannot tell you always off-hand *why*, except that he wishes to make his picture *look* right, and what he has done is a matter principally of taste and expediency. The drawing-room illustration here again applies. Were you to ask a well-bred man to explain why he entered the room, and comported himself in the manner he did, he would probably stare at you, and say that he did not know, and if you pressed him for an answer, would most probably say that he had acted as he had according to his own good taste and feeling, added to his knowledge of what *not* to do. In the same way, the law as to composing a picture properly cannot be laid down hard and fast.

I am afraid I have run away from my intended subject, Criticism, in a way, but so many of the recent emanations on composition have been of a critical, not to say didactic, nature, that they really form part and parcel of the whole subject. We have heard of what is called the "critical faculty," but of that more anon. We know that, as a rule, the less a person really knows of a subject, the greater his capacity for talking, and laying down the law upon it. Take the young art student, for example, in, say, his fourth or fifth year of apprenticeship. What a lot that young man knows! Hear him at an exhibition. He will take all the pictures by the most admired masters, one after the other, and pull them, metaphorically, limb from limb. This man can't draw, and that man's colour is bad, another's picture is "paintey"; Rembrandt is much too dark, Vandyk theatrical, Ostade commonplace, only the painter of pothouses and drunkards, "forgetful of the dignity of his art," &c., Rubens coarse and gross, and Terburg tight and niggley. Bless you, that young man and his friends know more about art than all the dead and gone masters rolled together. Then, again, our musical student's—his or her—infinite contempt for that old humdrum, Bach—he or she will at the same time rather give themselves away by admitting that he is difficult, and that they cannot play him; Mozart they find uninteresting and paltry; and, as for Beethoven, "Why, my dear sir, he was deaf half his time." But, as the playbills have it, five-and-twenty years are supposed to elapse. We meet our painter-student again, at the National Gallery, may be, earnestly poring over a picture by Terburg, the "despised and niggley." He does not make speeches now; the longer he looks at the picture the less he has to say, and the more he thinks. He has discovered that some of the other old duffers, too, curiously enough, did know something; and he will admit to you that when he gets into the miserables over his own work, he goes and has an hour or two with those glorious *old* chaps to pull himself together and see how things should be done; and if you can get him to talk about his own work you will find out from his conversation that he thinks he is just beginning to learn something about painting. Who is that man on the other side of our square, whose piano is so frequently heard for an hour or so before midnight? Who can it be? He is a musician, that we know. But we don't know that he is our quondam supercilious friend of the Royal Academy of Music, who, many a night, before retiring, comforts his tired brain with an hour at Bach's Fugues. He does not despise him now, albeit he still finds him difficult to play, and when worn out with his own work, he often finds relief and fresh inspiration in the study of the works of the greatest master of counterpoint and musical science that we have had. Bach "humdrum"! Don't you, dear reader, let such an expression escape your lips in his company now, or there will be "ructions" and "wigs on the green," forsooth.

With regard to the critical faculty before alluded to, I admit its existence, but not its universality. To some few people it is given, this taste and natural appreciation, but, cultivated by the study of, and constant association with, the best works. To have the discrimination necessary to form an opinion as to whether a picture is good or indifferent, is as valuable as it is rare, and even then, as you see, this knowledge has had to be fostered and cultivated by study and work, though not considered as such, perhaps, at the time. This possessor of the faculty you will find to be, as a rule, a very lenient critic; he will generally be able to find some saving clause to prevent entire condemnation: for he will be able to discern what the artist (I use the word in its larger sense) has been endeavouring to attain, and his knowledge of how far others may have succeeded, or failed, in the same direction, will remind him of the attendant difficulties; and though he may admit that the work is not good, and that it is not, may be, to his own individual taste, he will not stigmatise it as bad, for the mere reason that it does not please him personally; and he will also admit that much better work, containing smaller difficulties easily vanquished, is less satisfactory than a failure in a more noble attempt; and that, therefore, though the picture, or book, or play may be anything but good, it does not necessarily follow that it is deficient in interest and artistic value, and is to be dismissed with a few words of general abuse.

As I have said, the critical faculty, the proper one, is given to few, though I regret that it is often claimed by the many. Horace Walpole had it, and so had, in our own time, the late Tom Taylor, and he, good honest critic as he was, appreciating his own shortcomings in technical knowledge, made it a rule, whenever possible, to ask some painter friend to go round the gallery with him, and coach him a little in such matters as he, not having spent half a lifetime in the study of the practice of art, must necessarily be in ignorance of. Ruskin, again, possesses, or did possess, the discriminating faculty, to which he adds also, great executive skill; and from the fact that in the later editions of his works, he publishes statements to the effect, that he regrets some of his earlier expressions, one's respect is increased; for, clever as he was, it shows he is still learning, and not too bigoted to admit his former mistakes. G. A. Sala, too, may be mentioned as one of the very few critics who have ever done any serious work in art, and are consequently qualified to express an opinion of any value or weight.

With regard to the criticisms, the work of the common or garden so-called critic, of what value is it? He is on the staff of a paper, we will suppose, and he has orders from his editor to go to, say, an Exhibition of Prize

Potatoes in the morning, then to a Picture Gallery, and in the evening, as likely as not, to do his little towards making, or marring, the fortunes of some unhappy playwright. His acquaintance with potatoes may be greater than his knowledge of works of art, and he will not hesitate, with the assistance of the editorial "We," to tell you which tuber to choose, and what picture to avoid. His opinions then go forth to the public, by whom they are received as gospel; and the man who could not draw a hand, nor put a lucifer match-box into perspective, has the effrontery, by the publication of his assertive ignorance, to endeavour to lead the public's taste, and the iniquity, to damage the work of people who do know what they are about, and whose fame and even livelihood, may be seriously interfered with, by the vapourings of this noodle. And, ye gods! tell this man to his face he knows nothing practically of the subject on which he has written, and you have the "critical faculty" thrown at you. He has it, of course. Maybe he thinks he has a call towards art, particularly—pictorial art—in which case, he will identify himself with some school of faddists, or with some art impostor, the first of whom will drop him, when they find their fad played out, and their doll stuffed with sawdust, and the other person will make use of him in his public capacity, and laugh at him privately. No abuse will be too strong, for such works as do not incline towards his special "ism," and the English language will seem to him almost poverty-stricken in the matter of adjectives, when he wishes to find expression for his slavish admiration, and transparent apostleship, of work, the aim and object of which, he is as ignorant of as the producers. At the play in the evening he cannot do much damage, for he will trust to his programme for a description of the piece, and for his critical essay on its merits, and the skill of the players, to such expressions of opinion as he may gather from his fellows, in the foyer of the theatre between the acts, or in a sort of literary "knock-out" at his club afterwards.

In truth, I think we could do with a great deal less so-called criticism. Excepting in such instances as when the writer has practical acquaintance with his subject, the matter published is generally useless, and frequently mischievous, certainly so far as concerns art criticism. In all affairs applying to ourselves personally, we do not ask for, nor take, the views of any one who chooses to offer them. If we want an opinion as to the construction of a photographic lens, we go to a scientific optician, not to a sugar baker; therefore, if we want to know something about a work of art, we should go to a man who has a practical, as well as, theoretical knowledge of such things. But, heaven save us from being known as the art critic—"the mere literary person," to use Alma Tadema's expression—who would rule our destinies; he may be able to write correctly, he may, indeed, even have been to an University; and, perhaps, in one instance that we know of, may have even, after becoming a full-blown critic, gone to an elementary school of art; but, for all that, it does not necessarily follow, that such a person is to be accepted as a final authority, on, either pictures, plays—or even potatoes.

FURTHER NOTES ON TELE-PHOTOGRAPHY.

BY COLONEL J. WATERHOUSE I.S.C., ASSISTANT-SURVEYOR-GENERAL OF INDIA.

In April, 1892, I briefly described some experiments I had made in tele-photography with a roughly made-up apparatus. I have since had an opportunity of trying two properly constructed lenses of this kind — one made by Steinheil, the sad failure of which to make a decent picture of the snowy range of Kinchinjunga at seventy miles off is so graphically described by our excellent editor in the last number of the *Journal*; and the other one of Dallmeyer's make, which was exhibited at the meeting two days ago by Mr. Portman, and which he kindly lent me to experiment with. Unfortunately, I could only have it for two days; and the weather during those two days has not been at all tele-photographic, so that I have not had a fair opportunity of thoroughly trying it. However, in the course of the trials I was able to make, two very important points in regard to the use of these instruments have come to notice, and may be of interest generally.

The Steinheil combination is composed of a group antiplanet lens, Series II., No. 3, about 7$\frac{3}{16}$ inches focal length, the effective aperture being about one inch, or about *f* 7. It is fitted to a tube having a rack and pinion adjustment, by which the negative or enlarging lens, which is also about 1$\frac{3}{16}$ inch in diameter, can be moved nearer to or further away from the antiplanet, according to the scale of enlargement, which is fixed by the extension given to the camera bellows. For ordinary purposes an enlargement of about five times can be obtained with an extension of bellows to about 12 inches. A subject which taken with the lens in its ordinary state would occupy a space as large as a postage stamp, would, when enlarged, just come in on a plate 5 × 4. The antiplanet lens itself is a very good quick-acting lens, covering a fair field with a large aperture, and is useful for snapshots up to 5 × 4. The tele-photographic combination gives very fair definition over a considerable distance—*i.e.*, if distant objects be focussed, near ones will also be fairly sharp, and this, in a highly enlarged picture, is a very great advantage. The combination is somewhat slow in action, even when used with the full aperture, and trials made with it in the Zoological Garden showed that, although good for pictures of animals if sufficient exposure could be given, it would not answer for snapshots with anything beyond a very small extension of the camera. It may be noted that Messrs. Steinheil mention that the combination is most suitable for use with lenses having an aperture not smaller than *f*/7.

Mr. Portman's "Dallmeyer," though constructed on the same general principle, differs in many respects from the "Steinheil." In the first place, the principal lens is a quick-acting stereographic portrait lens of the B series, fitted with a rack and pinion adjustment for altering the distance between it and the enlarging lens, which is rather more than half an inch diameter, and fitted in a tube screwing on to the back of the portrait lens. The diameter of the negative lens is very much smaller compared with that of the principal lens than it is in the "Steinheil," but it has greater enlarging power. At the meeting, Mr. Portman said that he could not get good definition for objects at a distance, and on trying it on some houses, &c., from 100 to 1,000 yards, I found that the definition was very much worse than it was with the "Steinheil," even when stopped down to about the same relative aperture. It came to my mind that in one of his papers on this lens (see Photographic News, March 11th, 1892) Mr. Dallmeyer had given his reasons for selecting a special type of portrait lenses for the combination, because they had an adjustment for separating the components of the back element of the portrait lens, and that by this means the whole combination could be corrected for outstanding spherical aberration throughout the entire field for any chosen plane of object or screen. A lens of this kind, properly corrected for a near object, will not be so for a distant one, and to make it so the back lenses must be slightly separated. The lens as I have received it had the back lens closed up, but on giving it one complete turn back it was found that the definition was enormously improved, though there was more difference in sharpness between near and distant objects than was shown by the "Steinheil" combination exposed upon the same view with the same extension of camera; but a closer adjustment, only to be learned by experience, might have remedied this. Mr. Dallmeyer lays great stress on the importance of this adjustment, because it is essential to use as large an aperture as possible in order to gain rapidity and a large field, and if this correction by the lens were not possible the spherical aberrations would have to be remedied by the use of diaphragms, which would reduce the rapidity and diminish the field. The same adjustment of the back lens is also necessary for different extensions of the camera. It would require a series of trials to ascertain the best working conditions for objects at different distances and with different extensions of the camera. With the "Steinheil" lens this adjustment is not provided, and does not seem to be necessary for objects at ordinary distances. The use of the portrait lens makes the "Dallmeyer" combination much quicker than the "Steinheil" with the antiplanet, though the difference was not so great as might have been expected, probably owing to the greater relative size of the "Steinheil" negative enlarging lens. The weather during the trials was so dull and changeable that no fair comparison could be made. With a portrait lens the "Steinheil" combination would probably be more rapid, but possibly at the sacrifice of other advantages.

The other important point noticed in the use of these lenses was the immense superiority of the definition of images of distant objects given by orthochromatic plates as compared with ordinary plates. I have had no opportunity of trying these lenses on distant mountains, but I feel sure that the only chance of success with very great distances, or especially with snow views, lies in the use of orthochromatic plates. It may be noticed that M. Boissonas' celebrated view of Mont Blanc from Geneva was taken on an orthocromatic plate, and with the most powerful of Dallmeyer's tele-photo combinations. The tendency with these tele-photo lenses appears to be towards flatness, and it is against this tendency that the orthochromatic plates are so valuable in giving pluck and definition, even to very distant objects. A slow plate suitably orthochromatised will probably answer best, when quick exposure is not an object.

For some time past I have been orthochromatising my gelatine plates by bathing them for one or two minutes with the tincture containing erythrosin-silver and ammonium picrate, used for the orthochromatic collodio-bromide emulsion process, described in the February number of the *Journal* for last year. The formula is as follows:—

Erythrosin	1 part.
Silver nitrate	1 ,,
Picric acid	1 ,,
Ammonium (sp. g. ·880) about	30 parts.
Spirit of wine	500 ,,
Water	500 ,,

One part of the above solution being diluted with nine parts of water to make a solution containing about one part of dye in 10,000 of fluid. More ammonia may be added in the proportion of one part to 100 parts of diluted solution. This works exceedingly well for most purposes when orthochromatic plates are required, and for landscape work, with the tele-photo lens, no yellow screen seems to be necessary, unless there is much blue haze in the distance. The quantity of ammonium picrate may also be increased in such cases.—*Journal of the Photographic Society of India.*

The lot of the artist is not exactly a happy one. There is always somebody ready to pounce upon him and expose inaccuracies and anachronisms. The forthcoming exhibitions, no doubt, will furnish plenty of material for the specialist critic. Meanwhile, we read that anthropology is beginning to make itself felt in art. We have had enough of the art which gives us Dutch Madonnas and Whitechapel Highlanders, with a coat of sunburn to make them look healthy, and more than enough of that which cannot imagine a Scotchman without fiery red hair and the expression of a staring ogre. Photographs, or a return ticket to Edinburgh, would teach them better.

Thus the *Globe*, and with its opinion as to the value of photography to the modern artist no photographer will quarrel. But is it not too late to find fault with Dutch Madonnas? The painters of altar-pieces, from Raffaelle and Murillo downwards, went straight to nature for their Madonnas, and simply used their countrymen as models. There is no such thing as a universal ideal of feminine beauty, and if a Siamese artist had had to paint a Madonna, he would have given her the obesity and the pig-like eyes he so much admires. If the Madonnas of Spain, Italy, and Holland satisfied the Spanish, the Italians, and the Dutch, why should we complain?

LIBRARY

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, MARCH 31, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any News-agent.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. IV.—Wanted, A New Style.

EVERYBODY says that to improve the business of photography a new style of portrait is absolutely necessary, but nobody says what the new style is to be. A correspondent, writing to a contemporary some time ago, airily suggested, as if it could be obtained as easily as a pound of tea or a loaf of bread, that a new style of portrait should be introduced at once, and especially insisted that it must be one that amateurs could not produce, "then trade would revive and be entirely in the hands of the profession." This proposition is not without humour, however seriously it may have been intended, and has a flavour of Falstaff's hostess when she cried, "Good people, bring a rescue or two." New styles, with any grit in them, are not as plentiful as blackberries in autumn.

Does this correspondent know, I wonder, how many successful styles have been introduced during the last forty years? Just one—the Carte-de-Visite. This, at the time, most unlikely style caught on at once, and saved professional photography from bankruptcy. It not only did this, but it made fortunes. "Bring a new style or two!" Such things do not happen twice in a century.

The Cabinet, an offshoot of the Carte, languished for years, although it has now almost entirely superseded the progenitor from which it descended by a process of evolution. Then there are the Boudoir, the Promenade, the Panel, and others, neither with any suspicion of "go" in them; and the minute and utterably abominable Midget, which must have been invented by an enemy of photographers. Although very small, it has been a mighty instrument in the demoralisation of trade by the reduction of prices.

As regards the production of a style which the amateur could not imitate, I do not think that is of much consequence. The professional is already possessed of a style that not one amateur in a thousand could imitate, even if he cared to do so. The ordinary amateur cannot because of the difficulty, and the accomplished amateur will not, as a matter of taste, imitate the ordinary highly-retouched travesties of nature of which the world is so tired. The professional has here the monopoly of a style. Besides, the professional may feel quite safe from any but the most infinitesimal opposition from the amateur in portraiture. A few, like Mrs. Cameron in the past, and Mr. Maskell in the present, make portraits so fine as not to be understood by the multitude; while others turn them out so badly that, as far as I have seen, the amateur portrait class in exhibitions is always the deadest failure.

The greatest danger from the amateur is when he is not an amateur, which almost sounds like a riddle, the answer to which is, when he becomes a professional. Every professional has been an amateur, except those who entered the profession by the only legitimate way—the way of apprenticeship. Attending a few chemical lectures, and passing examinations on them, does not fit a student for professional life. Photography is not a chemical industry. This mistaken idea has done as much mischief, and produces as bad portraitists, as utter ignorance.

The difficulty seems to be that the professional photographer is lacking in imagination, or, anyway, not equal in the powers of imagination and adaptation to the followers of other arts, such as those of millinery and dressmaking for instance, and have not the ability to change fashions when trade flags. Dressmakers can make their victims do the most outrageous things, put humps on their shoulders, or anywhere else they choose to dictate, and are even now threatening to bring back a fashion of which the world has been ashamed for at least twenty years. Now, in all respect be it spoken, photographers have precisely the same weak material to work upon as the fashion makers—to paraphrase Carlyle—chiefly female.

We seem to have no power now. Every middle-aged man will remember the time when every drawing-room table was ornamented with stereoscopes, and littered with slides; and the first thing a visitor knocked over was a pedestal stereoscope with a revolving set of transparencies; but now, although great efforts are made by a few, all the king's horses and all the king's men do not seem able to set the stereoscope up again.

The fact is that all the king's men do not try. There is a want of cohesion and combination among photographers.

After all, I cannot think that the invention of the new style is the principal difficulty. People, especially those so disrespectfully referred to above, will accept anything so that *everybody else will do the same.* Cohesion is defined as "the act of sticking together," which is exactly what is wanted; but where are we to find the necessary nucleus? If that potentially powerful institution, whose motto is "Union is strength," the National Association of Professional Photographers, were taken up as it should be by every professional in the land, and all members worked together, one heart, one mind, one soul; if the president was a dictator whom all must obey; and if he issued his edict, that one style and one only should be pushed, the sheep-like public would have no chance but to obey the fashion and admire it too. It is so easy to call almost anything "sweet" when it is the right thing to do. The proposed new club, to which I wish all success, should also be able to assist materially in this matter. Both bodies should remember, as the dictionary definition slyly notes, "The great antagonist of cohesion is *heat.*"

It is not for me to suggest what the new style should be; there are, however, a few useful hints to be found in the history of the carte-de-visite. The earliest were born complete, beautifully proportioned little pictures of full-length figures. The price was within the reach of the middle-class customer, if it did not go lower—a dozen or score for a guinea. The number varied, but what was invariable was *the guinea.* The little pictures being cheap could be given away; being mounted on very thin card—not the clumsy thick enamelled material afterwards used—they could be carried in a lady's card case, and be always at hand to distribute.

It will be observed that the success of the carte depended on three good things—a constant style, a constant price, and every facility given for the sitter to get rid of them; and giving them away induced fresh expenditure in the exchange.

There being no unity among photographers the decadence followed. The policy of grasp and grab and beat your neighbour set in, and photographers began to try to overreach each other; a large firm advertised ten for ten shillings, and all was soon over. This sort of demoralisation it should be the aim of the Association to stop. The size of the figure got larger—an attempt to give a little more than your neighbour for the money—under the mistaken notion that quantity is better than quality. This absurd exaggeration was continued, until the head got too big for the card. Thus the photographer lost his hold of the "splendid guinea," and he began to take shillings. Once on the toboggan, the bottom of the slide was soon reached, and very low indeed the remuneration has become.

The dealers, with the best intentions, did much harm. The mount, originally thin and plain, became thick, clumsy, enamelled, coloured, decorated, and shocking to the taste, and this, just at the time when the art of the country was improving, and not in the humour to appreciate loudness or vulgarity. The albums were always a trouble; being chiefly made in France, they were in execrable taste; the openings were cushioned, domed, or oval in shape, these shapes being always destructive to the best effect. The matter got still worse as time advanced, and albums were made with the leaves covered with gaudy chromo lithographs which effectually outstared the portraits, which were huddled into a corner.

I wish it to be understood that all I have said is business, pure business. From an art point of view, I utterly disagree with any one particular style. As a matter of art the photographer should allow his individuality to run riot; as a matter of business, he must follow the fashion, and the play for his individuality must be found in following the fashion better than any of his fellows.

There is another point to which I should like to refer if I am not wearying my readers.

When professional photographers recognise the fact that success in trade must be reached through difficulties, and that the more difficult it is to reach success the greater pull it gives them over the amateur, they will have more chance of prosperity. I think it is admitted on all hands that business is nothing like so good as it was in the wet-plate days. The introduction of easy processes has made photography anybody's business, and yet photographers continue to waste their time and talents in trying to produce minute improvements in a process that is already too perfect, and too easily worked by anyone, to leave them a living in it. I have preached for years that the process as it stands is quite sufficient for business, or, indeed, artistic requirements, and demands little or no talent to work. In fact, in technical photography, Jack is as good as his master. The future way to success will lie in the excellence of artistic results, not in the multiplication of processes. It is the beauty of the finished picture that will "pay." One illustration of the vast amount of ingenuity and energy that has been wasted is in the search for or trial of new developers—chemists' work, not photographers—and of all the immense lot, the old one, pyro and ammonia, is in almost universal use with real workers, and especially in the profession.

* * *

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Universal Toning Bath—Fading of Silver Prints—Positives by Development—Amidol Developers.

Universal Toning Bath for Albumen and Chloride of Silver Emulsion Prints.

THOUGH the combined toning and fixing bath is still much in favour, more especially among amateur photographers working with emulsion papers, the general tendency at present among workers who are striving for the production of prints of durability is, I believe, towards the employment of separate solutions for toning and fixing. The well-known toning bath with precipitated chalk has been repeatedly recommended as a very useful one as regards durability of results, uniformity of tone, and economy, and it is now again highly praised by Dr. A. Miethe, who denotes it as an excellent toning-bath for albumen prints as well as for prints on gelatino or collodio-chloride emulsion paper. The manipulations with this bath being, however, not quite simple and requiring great care, it may be well to give the working details of the author's method. One hundred grammes of precipitated chalk are very finely shaved and sifted through a hair sieve. After this 250 c.c. of boiling water are poured over the chalk-powder, which should have been placed in a vessel which will stand heating, and, after shaking violently, the chalk is allowed to settle, and then the water is decanted. This operation should be repeated at least once with a larger quantity of boiling water. The purified product which has been obtained by this process is dried and kept in a stoppered bottle. The bath is made up as follows :—

Distilled water	1,000 c.c.
Precipitated chalk...............	10 grammes.
Chloride of gold	0·5 – 0·7 „

After shaking the mixture violently for at least five minutes, and allowing it to rest for a time, it will be ready for use. If strengthened from time to time by the addition of chloride of gold it may be used for a long period. But to keep it in working order, the prints before being submitted to its action should be treated in the following manner :—After printing, they are washed in several changes of water until the latter remains perfectly clear, and are then placed in a slightly alkaline washing bath, consisting of 1,000 c.c. of water and 10 grammes of soda ; or, in the case of celloidin prints, of 1,000 c.c. of water and 10 c.c. of ammonia. Finally they are washed for five or ten minutes in clean water. In the case of celloidin and albumen prints, it is well to slightly raise the temperature of the toning bath ; the process will thus go on very quickly, and warmer tones will be obtained. If the quantity of the bath taken at the beginning of the toning process proves to be insufficient for the number of prints to be toned, it may be strengthened by a solution of :—

Precipitated chalk	10 grammes.
Chloride of gold	1 gramme.
Distilled water	300 c.c.

After toning, the prints are fixed and washed as usual. The toning bath should be poured back into the bottle on the sediment of chalk, when it is violently shaken. Should the bath refuse to tone, this may be for the reason that the prints still contain traces of the acid which has been used in the preparation of the paper ; in this case the bath is poured back on the sediment in the bottle, and to 1,000 c.c. of it, 5 drops of a soda solution, 1 : 10, are added, the whole being then violently shaken. Or it may be for the reason that the bath, after its preparations, has not been sufficiently shaken up.

The Fading of Silver Prints.

The Editor of the *Phot. Mittheilungen* points out in a leader of this journal that insufficient washing is not the only cause of the fading of silver prints. It sometimes happens that, in spite of very thorough washing the prints soon become yellow. Apart from the cardboard or mount which is often in default, on account of its colour giving off sulphur, the cause may be found in fixing large quantities of prints in too small a quantity of hypo solution. Fixing should always be done in the presence of a large excess of hyposulphite of soda. Five grammes (80 grains) of hypo should be taken to each sheet of paper. In this case a soluble double-salt of two parts of hyposulphite of soda with one part of hyposulphite of silver,

$$= 2Na_2S_2O_3 + Ag_2S_2O_3,$$

is formed by fixing. If, however, the amount of the hyposulphite of soda is insufficient, a compound of one part of hyposulphite of soda with one part of hyposulphite of silver,

$$= Na_2S_2O_3 + Ag_2S_2O_3,$$

is formed, which is insoluble in water, and remains in the print. It is very readily decomposed, especially in the presence of carbonic acid and moisture, and the following is then formed :—

$$\underset{\text{Hyposulphite of soda.}}{Na_2S_2O_3} + \underset{\text{Water.}}{H_2O} + \underset{\text{Carbonic acid.}}{CO_2} = \underset{\text{Carbonate of soda.}}{Na_2CO_3} + \underset{\text{Hyposulphurous acid.}}{H_2S_2O_3}.$$

Now the hyposulphurous acid is very quickly divided into sulphurous acid and sulphur :—

$$H S_2O = H SO_3 + S.$$

It will then suffice that the sulphur formed throws itself upon the silver present in the insoluble double-salt in order to produce sulphide of silver. "There are many silver prints," says the author, "which are fading not only in the dark parts, but also in the high lights—*i.e.*, where they apparently are free of silver. Prints of this kind are, as a rule, insufficiently fixed, containing, therefore, through the whole mass of the image the insoluble hyposulphite of soda and silver."

The Production of Positives instead of Negatives by Development.

F. Kogelmann has found that a diapositive is developed on a normally exposed plate by a metol developer containing a large amount of ammonia. But the positive is a hermaphrodite image. Uppermost lies an exceedingly thin negative, and beneath it the positive, the clear whites being, therefore, absent. In the negative the reduced silver is of a normally grey appearance, the positive appearing yellowish-grey by reflected light, and violet by transmitted light. Though the positive is prevailing, there has been found no case in which the negative has been entirely absent. The same result was obtained with amidol, which equally well develops a positive on a normally exposed plate with a large amount of ammonia. But also this positive is, as in the case of metol, a mixed image consisting of a very delicate negative at the top and of a positive lying beneath.

The Amidol Developer.

It has been experienced by some operators that the amidol developer, if prepared according to the formula given originally by the maker of this substance—water 1,000, sodium sulphite 50, amidol 5—though it acts very energetically on the exposed silver salts, gives not always the required density, and that plates of very high sensitiveness are sometimes slightly fogged by it. To produce density, the addition of a small quantity of a 5 per cent. hydroquinone solution has answered very well in our own hands ; but the same result, together with absolute clearness, will be obtained by using a developing solution prepared according to a formula recommended by Dr. O. Lohse, in the *Photogr. Almanack for 1893* :—

Stock sol.	Water	1,000 c.c.
	Sodium sulphite ...	50 grammes.
	Potassium bromide	2 "
	Citric acid............	1 gramme.
Add when dissolved :		
	Amidol	5 grammes.

◆

The local photographers at Sandgate, as well as amateurs without number, have secured photographs of buildings wrecked by the recent landslip there. We notice that one religious publication reproduces some of these, and improves the occasion by making them illustrate an article entitled "Houses built upon the Sand."

TELE-PHOTOGRAPHY.*

BY THOMAS R. DALLMEYER, F.R.A.S., ETC.

(*Continued from page* 147).

THE preliminary difference in detail, however, consisted in the adoption of a positive element of large aperture and short focal length (or high intensity as it is called), and a negative fractional in its focus of the positive, thus enabling the elements to be contained in a short tube. In this manner a considerable magnification is attainable, and a useful amount of angle can be included. The further difference lies in the fact that Dolland and Barlow had only to attend to the corrections of their central pencils, and in my first endeavour to produce this photographic lens, it was necessary to construct an optical system in which both central and excentrical pencils should be properly corrected throughout a flat field, in addition to being actinic or chemically corrected. This construction I shall briefly refer to. The positive aplanatic lens, A, can only be corrected to define in its axis the appearance of the image of any object a little way off the axis being indistinct ; it was necessary then to calculate the curves of the lens, B, of the most suitable form to correct the entire instrument throughout its field. To enter into the niceties of lens construction it can easily be shown that with this form of lens system there can be only one definite extension of camera or distance between B and P4, in which the entire system is aplanatic. Again, this form of lens produces too violent a pincushion distortion to be admissible, and I therefore discarded it for a more recent construction that I will shortly illustrate, in which one error is remedied, and the other minimised. On account of the fewer number of elements in this more simple form, I will here utilise Figs. 1, 2, and 3 to describe the general principles involved in the working of the tele-photographic lens.

For the purpose of forming an image for any given position of the focussing screen, the rays must be made convergent, producing a direct primary inverted image.

It is immaterial what position may be chosen for the plane upon which the image is to be received : it may be either in close proximity to the posterior lens, or removed to any distance whatever further away ; but in order to focus, it is essential that a correct distance be given between the two elements of the lens itself ; in other words, a correct adjustment of their separation, focussing always being most easily, and sometimes necessarily, accomplished in this manner (Fig. 1). For example, supposing the lens were focussed upon a very distant object—say the sun—with the focussing screen set at a given distance, it would be impossible by any adjustment whatever of the focussing screen to find a plane where the instrument would come to a focus for very near objects.

Fig. 2.

The upper black rays meets the lens A parallel to the axis, and by a proper adjustment between A and B, comes to the focus at F upon the plate P L. If P L be removed further from the lens B to take the position P′ L′, the lens A will have to be moved slightly nearer to B and take the position A′.

---

* Read before the Society of Arts, March 1st.

The lower dotted line represents a parallel ray falling upon A′, which passes through the negative lens B, and coming to focus upon the new position of the plate P′ L′, at F′.

On the upper side of the axis a parallel ray to A finds its focus as in the dark line on the plate at F. If, however, some ray from a near object falls upon the lens A, in the direction of the dotted line, after passing through the lens B, is found divergent, and no positive focus is obtainable.

In the lower half of the figure, however, A is presumed to take a proper position in A′ when the ray from the near object passing through A′, and also through the negative lens B, finds its focus upon the plate in the fixed position chosen, at F.

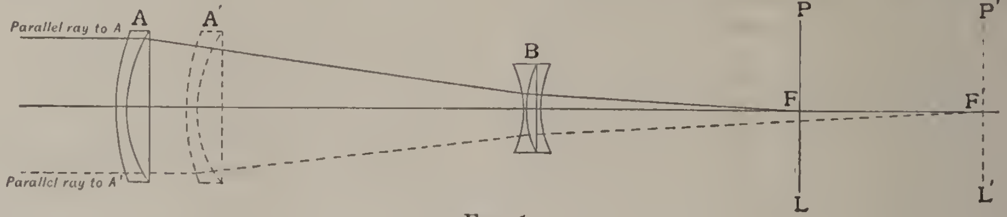

Fig. 1.

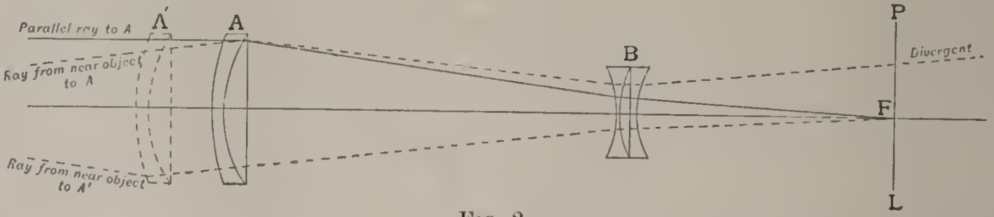

Fig. 2.

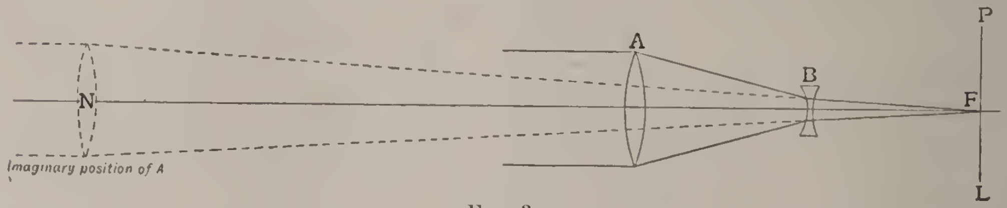

Fig. 3.

Near objects, with the lenses in their former adjusted or fixed position, would send the rays from such objects, after passing through the entire lens, divergent and not convergent.

On the other hand, if the separation were adjusted between the two elements for a near object, and it was then pointed towards a distant object, it would be found equally impossible to find any position for the focussing screen, in which the focus could be observed, except, as before stated, by an alteration between the separation of the component elements of the lens itself.

It is evident that the longer the focus of the positive element in the construction, the greater would have to be the separation between the two elements for near or distant planes.

In this construction there is then no limit to the size of the image that can be obtained, a slight adjustment in the separation of the two elements producing the correct focus on the screen, be it near or distant from the lens itself; but it must be borne in mind that the greater the separation between the plane of the focussing screen and the lens, the less is the rapidity that can be attained (Fig. 1).

I will now call your attention to the question of rapidity. Supposing the screen be placed at a distance of 10 inches from an ordinary lens, and a distant object focussed, say the lens has a focus for parallel rays of 12 inches, if the new lens be made to take its place, and the same object be focussed, it will be found that the image produced is five times larger with the new len than with the ordinary one, you know then that you are practically, and to all intents and purposes, employing a lens of 60 inches focus!

The question naturally asked is, What will be the rapidity? The answer is, that you have to consider the front lens placed at distance of 60 inches from the focussing screen; in other words, the nodal point is thrown forward outside the lens to a distance of 60 inches from the focussing screen (Fig. 3).

Fig. 3.

Represents a beam of rays passing through the two component elements, A and B coming to focus upon the plate P L. To estimate the rapidity it is necessary to consider the full aperture placed at the full focal plane passing through the nodal point at N; A is thus made to take up an imaginary position. The position of the nodal changes for different positions of the plate P L. It is evident to you, then, that too much stress cannot be laid upon the desirability of large aperture for the anterior positive lens.

In the case cited, supposing the lens to be of 3 inches aperture, you would then be working at an intensity of f20.

In the improved form of tele-photographic lens (Fig. 4) the positive element consists of a complete portrait combination, preferably of the form invented by my late father, and the negative element is a double combination with exterior convex surfaces, but of negative focus.

(*To be continued.*)

CAMERA CLUB CONFERENCE.

PROGRAMME.

CONFERENCE at the Society of Arts, 18, John Street, Adelphi, on Wednesday, April 12th, to be opened by the President at 3 p.m. Papers to be read from 3 p.m. to 6 p.m., in the Theatre :—

1. 3 p.m., opening by the President.

2. Mr. Wm. Taylor, "The Establishing of Standards."

3. About 3.45 p.m., Mr. T. R. Dallmeyer, "Lens Systems."

4. About 4.45 p.m., Mr. Chapman Jones, "On Certainty in Photography."

5. About 5.30 p.m., Mr. Leon Vidal, "On the Influence of Photography upon Vision and upon Works of Art, both in Respect of Form and Colour."

7.30 p.m., Annual Club Dinner for members and friends.

Thursday, April 13th, 3 p.m., renewal of Conference in the Theatre, Society of Arts. Papers to be read from 3 p.m. to 6 p.m. :—

1. 3 p.m., Professor E. Mach, "Scientific Applications of Photography."

2. About 3.30 p.m., Mr. A. W. Clayden, M.A., "The Organisation of Meteorological Photography."

3. About 4 p.m., Mr. Hume Nesbit, "Relations of Art and Photography."

4. About 4.45 p.m., Mr. Rowland Briant, "Astigmatism and Pictorial Effect in Photography."

5. About 5.30 p.m., Dr. J. M. Eder, "On the Determination of Focal Points in the Use of Photogrammetrical Apparatus."

Renewal of Conference at 8 p.m.

1. 8 p.m., Mr. H. Van der Weyde, "The Pictorial Modification of Photographic Perspective" (illustrations by the "Photo Corrector," the working of which will be demonstrated).

2. 8.45 p.m., Captain W. de W. Abney, C.B., R.E., F.R.S., "On the Speed of Plates, and other Matters."

3. 9.15 p.m., Mr. H. M. Elder, M.A., "Some Notes on the Effect of Light on Plates."

Friday, April 14th, 8 p.m., Exhibition of Lantern Slides in the Theatre. Special tickets for this exhibition.

The Annual Exhibition of Photographs by members will be on view at the Club, Charing Cross Road, after Conference Week. Admission, on Tuesdays only, from 10 to 12 and 2 to 4, by tickets from members of the Club. The exhibition will continue for about six weeks.

All photographers are cordially invited to take part in the Conference.

The meetings at the Society of Arts are open to ladies.

CORRESPONDENCE.

"PATENTED PROCESSES."

Sir,—Your leading article in the last issue of your paper very accurately represents the state of affairs at the Patent Office. Yet inventors have but themselves to thank, since the majority of them fail to perceive that the Patent Office, being only an *executive* department of the Government, can have no judicial powers to decide as to whether any invention is patentable or not, from want of novelty or any other cause.

Novelty can only be ascertained by searching, a lengthy and correspondingly expensive process ; nevertheless I have often suggested the following course by which searching may be avoided. Let the patent agent who files a provisional application for patent here be instructed to prepare and file an application for United States patent without delay. The United States Office will then search, and their records being very full, and containing British and foreign as well as their own specifications, their rejection or allowance of this or that claim, quoting the reasons, will be found of considerable value in disclosing the state of the art. Where there is found to be no novelty in the invention it may then be abandoned ; and where, as is usually the case, there is found only a certain amount of novelty, less than was supposed, the patent can be confined to that novelty and consequently be upheld.

An inventor will meet with more attention when an United States patent has been granted on the same invention, and he will be in possession of a valuable and cheap foreign patent into the bargain. The cost will, in most cases, be less than searching in the records here.

Reginald Haddan,
Herbert, Haddan, & Co., Patent Agent.
18, Buckingham Street, W.C.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

March 23rd.—The chair was occupied by Mr. A. **Haddon**, who, however, vacated it during the earlier part of the evening whilst speaking on the subject of the angle of view.

In this connection Mr. **Haddon**, in reply to Mr. Everitt's paper, said that the late Mr. J. H. Dallmeyer had given a rule which depended, precisely in the same way, on taking the side of the plate as the basis for calculation. He (Mr. Haddon) believed that the rule he had given would make the calculation on the accepted basis easier, and was more correct than the views put forward by Mr. Everitt.

Mr. P. **Everitt** said that Mr. Haddon had said that he did not see why the corners of the picture should be dignified by being reckoned for. Now it was not a question of dignity, but of fact, and, as the corners constituted a part of the picture, they ought to be allowed for. Then, as to the other part of his argument, he still maintained that the measure should be taken from the point of sight to the furthest corner of the picture, and that angle should be doubled to find the angle of view under which the picture was taken.

Mr. **Haddon** thought that Mr. Everitt was confusing two different things—the angle of view included in the picture and the angle of deviation from the line of sight.

Several members desired to speak on the question, but as other matters of importance were fixed for that evening. it was decided to continue the discussion at a future meeting.

Mr. E Clifton then read a paper on "Cameras and Tripod Stands," illustrating which a number of cameras were shown from early to very late patterns.

Mr. Avery thought that the swing-front in conjunction with the swing-back is a very useful arrangement. When the back and front are swung parallel to each other, and the basa of the camera points upwards, the effect of a high-rising front is obtained. and this is useful in some cases. He would also like to see a dark slide described in which it was not necessary to draw out the shutter to the full extent at right angles with the camera. When photographing an interior it was often necessary to place the camera so far back in a corner that an ordinary shutter could not be drawn fully out.

Mr. W. E. Debenham strongly approved of a high-rising front in preference to pointing the camera upwards and swinging the back. In the latter case the plane of definition cut the plane of the plate instead of being identical with it. Moreover, with a lens pointed upwards, less light passed through the diaphragm from the foreground, where it was mostly wanted, than from higher up. With the axis of the lens horizontal the least light came through the diaphragm from the sky and top of a building where there was most to spare, and the most light came through from the level of the camera, where, as being generally foreground, objects were apt to come too dark. Of course a lens including a wide angle of light would be necessary.

Mr. Butler inquired whether the point of sight did not depend upon the direction of the axis of the lens.

Mr. Debenham said that it did not, unless the lens was fixed at right angles to the plate. The point of sight would be at that part of the plate where a line, passing through the lens, could be drawn at right angles to the surface of the plate.

It was understood that Mr. Clifton would give a supplementary paper dealing with magazine cameras and forms of stand adapted for the studio. The meeting concluded with a vote of thanks to Mr. Clifton.

Affiliation of Photographic Societies.

Meeting of Delegates at 50, Great Russell Street, W.C., on Friday, March 24th.—Mr. Edgar Clifton (Photographic Club) in the Chair.

The Chairman read an extract of a letter from Mr. Andrew Pringle (P.S.G.B.) apologising for his absence, owing to indisposition.

The Secretary announced that since the last meeting of delegates seventeen more societies had been admitted, bring- the total to forty-six in all.

The Sub-Committee, which had carried out the technical lectures on Photogravure, presented their report, in which they expressed the opinion that their success yields great encouragement towards undertaking something on similar lines in the future, and that they were very greatly indebted to Mr. Herbert Denison and to Mr. Horace Wilmer for their assistance.

On the proposal of Mr. F. A. Bridge (Photographic Club), seconded by Mr. Beckett (Hackney Photographic Society), the report was adopted.

The Chairman said that, owing to the lamented death of Mr. William Bedford, it would be necessary to appoint a fresh chairman, and, on the proposal of Mr. P. Everitt (London and Provincial Photographic Association), seconded by Mr. A. Mackie (P.S.G.B.), Mr. Andrew Pringle was unanimously appointed.

Mr. Everitt remarked that up to the present they had not received a balance-sheet, and he was of opinion that a regular date should be fixed upon which the annual balance-sheet should be presented, and he would propose that the treasurer be requested to furnish a balance-sheet up to date, and that such balance-sheet be presented at the next meeting of delegates.

After some discussion it was seconded by Mr. Mackie and carried.

The appointment of an independent treasurer was raised, but, at the suggestion of Mr. Bridge, this was deferred until the balance-sheet should be in the hands of the delegates.

The question of the organisation of the Technical Albums was raised, and the Secretary was instructed to communicate again with the secretaries of the societies in the matter.

A lengthy discussion ensued on the advisability of the Affiliation inviting a conference of judges to consider exhibition rules, and it was finally decided that this should be done, and a sub-committee was appointed to arrange preliminaries: the sub-committee to consist of Mr. Beckett and Mr. Mackie, together with the Chairman, Mr. Andrew Pringle, with power to add to their number.

City and Guilds of London Institute.—Photographic Section.

A meeting was held, on Wednesday, at which a paper was read by Mr. Staynes on "Pinhole Photography."

After describing the method of Captain Abney and Dallmeyer for calculating the size of pinhole, he exhibited the Photomnibus apparatus as sold by Mr. Wormald, to whom he was indebted for the loan of the original prize pictures taken by the above apparatus.

The members were pleased with the apparatus and pictures, and several notified their intention of trying the uses of pinhole.

A special prize is being offered by Mr. Staynes for this class of work at the forthcoming competition of the Society.

The meeting concluded with a vote of thanks to the lecturer, and Mr. Wormald for the loan.

Putney Photographic Society.

The Members' Annual Lantern Slide Competition was held at the Society's Rooms, Charlwood Road, on Monday, 20th inst., Dr. W. J. Sheppard in the chair. Mr. A. Horsley Hinton officiated as judge. There were two classes—viz., (A) Landscape and Seascape, and (B) Figure Studies, Street Scenes, Portraiture, &c. The Society's Bronze Medal was given as first, and a Certificate as second, prize in each class. The slides, in sets of six, having been passed through the lantern by Mr. Ovey, Mr. Horsley Hinton awarded the prizes as follows:—Class A—1st prize, Mr. H. Faulkner; 2nd prize, Mr. A. E. Smith. Class B—1st prize, Mr. W. F. Gorin; 2nd prize, Mr. W. Martin, jun.

Having the power under the rules to award a silver instead of a bronze medal to the best set, should it merit that distinction, Mr. Horsley Hinton stated that he had no hesitation in giving the silver medal to Mr. Faulkner for his excellent set of landscapes.

On Thursday, 23rd inst., the "Photography" Prize Slides were passed through the lantern by Mr. Martin, and deservedly met with a very hearty reception.

On both evenings there was a large attendance of members and their friends.

April 10th, at 8 p.m., "The Sandell Plate," lecture and demonstration, by Mr. S. **Herbert Fry**.

Hackney Photographic Society.

Tuesday, March 21st, 1893.—Mr. R. **Beckett** presiding.

Two nominations were read.

Members' work was shown from Messrs. Hudson, Roofe, and Sodeau.

Question: Can any member give his experience of the "Zoka Hand Camera"?

Reply: Good, as a low-priced camera.

Question: What lens is best for landscape work?

Reply: Rapid rectilinear, or single landscape if it will work at *f*/11.

Mr. R. **Beckett** recommended having a lens that will cover a size larger than the plate, so that it will cover when the lens is raised.

Mr. **Herbert** S. **Fry** then gave his "Demonstration of the Sandell Plate." He first wished to remove a popular idea that this plate is a slow one, and proved the rapidity of it by showing several prints of objects in motion without any blurring. Mr. Fry claimed the following points for it:—I. The best in the market for instantaneous work. II. The only one for interiors. III. Complete practical cure of halation. IV. A better and rounder image from the peculiar sensitiveness of the emulsions. V. The latitude in exposure, the length of time within reason, is unimportant. VI. For the last reason, it is the plate for beginners. The Sandell plate has a rapid film over a slow film. The action of the rapid film secures a good image in the event of a short exposure. If a prolonged exposure be given, so that the rapid one is over-exposed, the image on the rapid one will be thin, and the excess of light will penetrate the slower one, which will secure a good result. If a still longer exposure be made, the little light that penetrates the film is reflected by the glass back again into the slow film, where it practically stops altogether. The range of latitude between a rapid exposure and a long one with perfect freedom from halation is anywhere between 1 to 40 or 50. The Sandell plate acts selectively. The details are produced by the fast film, and the high lights in the slow. If a quick shutter exposure be made, the development can be steadily and persistently made till it enters the second film, provided you avoid too much alkali. The formulæ for development include cyclol, eikonogen, hydroquinone, or eikonogen and hydroquinone mixed, preferably the following:—

Hydroquinone	30 grains.
Eikonogen	100 ,,
Rodinal	9 drams.
Sulphite of soda	2½ oz.
Carbonate of potash	2½ ,,
Water, make up to	1 pint.

This is a stock concentrated solution. In summer add 1 part to 7 of water; in winter 1 part to 3 of water—for immediate use. In cases of over-exposure (say 50 times normal) dilute this again with ten times its bulk of water, and add 2 to 3 grains of bromide of potassium to the ounce. If this be too slow, add only a very little of the concentrated to encourage it. It is always far better to use weak solutions than to trust to after reduction. The fixing bath is stronger than for other plates, because the films are thicker and richer in silver. Never strip a film, for the top film must have something in it that adds to its usefulness—for instance, it may be solarised, and, if so, the shadows must be rich in detail. A question was asked if any special precautions were to be taken, such as against the light, &c. Reply was given, No; a print was handed round, the subject showed the bright sun in one corner, boy on bicycle, rails against the sky in the background—there was no halation, spokes of the wheel were sharp, and the rails without a blur. A series of prints, 15 by 12, were passed round, in none of which did the slightest halation appear, although some of them had five hours' exposure with *f*/45, and, as a contrast, one taken a few days ago, a yacht sailing, with cordage against the sky, all perfectly sharp, 1-60th sec. *f*/11.

A vote of thanks was accorded to the lecturer.

The Photographers' Benevolent Association.

Committee Meeting, held in the Rooms of the Photographic Society of Great Britain, Monday, March 27th.—Mr. A. Mackie in the Chair.

The Secretary reported that he had just secured a permanent situation for an assistant who had received help from the Association at intervals all through the winter. There were five applications for assistance, and three of the applicants attended. In one case a loan amounting to £5, and in another case £3, were granted. In the third case, which was a particularly difficult one, owing to the applicant's inability to speak much English, a temporary grant of £10 was made, and applicant was referred to a gentleman of his own nationality. The two cases in which the applicants did not appear personally were referred back to the Secretary, with instructions to make further inquiries, and to grant assistance in certain contingencies. Messrs. H. D. Miles and G. Fowler Jones were accepted as subscribers, and the Secretary acknowledged special donations from the *Photographic Review of Reviews* Charitable Fund, £2 2s.; Anonymous, 5s.; Two Prize-winners in *Photography* Competitions, 12s.

North Middlesex Photographic Society.

The second of the series of elementary technical classes being given by the above Society was held on Wednesday, 15th inst., the subject being "Development." Mr. C. **Beadle** briefly explained the subject in hand before proceeding to the more practical part, in which he was assisted by Messrs. J. McIntosh and A. J. Golding. The plates were exposed at a special outing held on Saturday, 11th inst., each beginner developing his own plates, while the instructors stood by to show and explain as development proceeded. These classes are given (free of charge) to help beginners. The next will be given on Wednesday, April 12th, and consist of "Toning Gelatino-Chloride Papers." The Hon. Secretary, Mr. G. Gosling, 13, Lausanne Road, Hornsey, will be pleased to hear from any gentleman wishing to attend.

Tooting Camera Club.

Report of the Annual General Meeting, held at the Mission Room, Tooting Bec Road, March 22nd, 1893.—The **President** in the Chair.

The Hon. Sec. read his report and submitted Treasurer's balance-sheet for the past year, showing a balance in hand of £3.

The following officers were unanimously re-elected:—President, Mr. A. H. Anderson; Vice-President, Mr. J. H. Beckett; Hon. Treasurer, Mr. C. D. E. Stowell.

Mr. **Dollery**, who declined to be re-elected, proposed that Mr. J. F. Child be elected Hon. Sec.; seconded and carried unanimously. A vote of thanks was passed for Mr. Dollery's services as Hon. Sec. since the formation of the Club.

A committee, consisting of the following gentlemen, was duly elected, viz.:—Messrs. H. Berger, G. H. Dollery, W. Irwin, and R. Simmons. A small sub-committee was appointed with a view of finding suitable headquarters.

The next meeting will be held on Thursday, April 13th, at 8.30 p.m., at the Mission Room, Tooting Bee Road, when Mr. DOLLERY will demonstrate "Cresco-Fylma."

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, 20th inst., at Hanover Hall, Hanover Park, Peckham.—The President, Mr. F. W. EDWARDS, in the Chair.

A CONSIDERABLE number of prints for the Winter-work Competition were handed in for adjudication. Mr. BAINBRIDGE LYON was declared to have secured the first place with his picture, entitled "Roydon." Mr. W. E. HARMAN'S two farmyard studies, and Mr. E. J. LESTER'S snow-covered trees came next in merit in the order mentioned. Some criticism took place on the other pictures sent in. The judging was done by the PRESIDENT, assisted by Mr. H. G. BANKS and the HON. SEC.—Mr. RANSOM exhibited a hand camera called "The Queen," the invention of a South London resident, Miss Nellie Crouch. It was of very simple construction, small in size and cheap in price, being sold, fitted with a single achromatic lens and sheaths, by Messrs. Miller & Co, of 122, Newington Butts, S.E., for 15s. 6d.

Fixtures:—Monday, April 3rd, Excursion to Ely Cathedral, starting from Liverpool Street Station at 8.45 a.m.—Wednesday, April 5th, Annual Meeting.—Monday, April 17th, Lantern Evening, "North Wales," Mr. JOHN A. HODGES.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, held in the Large Room, Colonnade Hotel, March 21st.—Mr. W. JONES in the Chair.

MR. BYNOE, representing Messrs. R. & J. Beck, gave a lecture on the uses and capabilities of the Frena hand camera. His remarks were illustrated by most lucid diagrams of the working parts, which were thrown on the screen. This enabled members to very clearly understand its construction, and its capabilities were ably demonstrated by the series of slides shown of views taken with this camera, as well as by prints passed round. The CHAIRMAN thanked Mr. Bynoe, on behalf of the audience, for his very interesting lecture.

ASHTON-UNDER-LYNE PHOTOGRAPHIC SOCIETY.

ON Monday evening, March 20th, Mr. L. E. MORGAN, of Messrs. Fuerst Bros., London, gave a demonstration to the members of the above Society, at their rooms, Henry Square, on "Amidol Development." There was a fair attendance, and Major BRADLEY presided. Mr. MORGAN said that amidol was a new developer of one solution, and was very useful for the tourist. He also showed its working by developing a half-plate negative, a bromide print, and also a lantern slide exposed in the room. One of the members brought a quarter-plate negative he had exposed during the day, which Mr. Morgan developed very successfully.

At the close a hearty vote of thanks was given him, on the motion of Mr. GLAZEBROOKE, seconded by Mr. WILLIAM CHADWICK.

On Thursday evening, March 23rd, Mr. J. T. LEES gave a lecture in the same rooms on "Photographic Optics." Mr. SAMUEL WOOLLEY occupied the chair; but there was not a very good attendance. However, those members who did turn up had a very great treat. Mr. LEES explained the different forms of lenses by means of a large number of diagrams, also the use of the stop, and why and when it ought to be used. His lecture was very instructive, and of great benefit to the members present. At the conclusion of his lecture a vote of thanks was given him, on the motion of Mr. W. C. BROWN, seconded by Mr. JOSIAH WATLEY.

Messrs. Taylor, Taylor, & Hobson sent a case of exhibits for the inspection of the members.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

JAUNDICE.—You might try the plan suggested some time back by Dr. Liesegang for decolorising, or rather, altering the colour of a yellow-stained negative. He suggests that it should be placed in an old combined toning and fixing bath, such as is used for gelatino-chloride paper. By this method the yellow is turned to a blue shade, and therefore prints much quicker.

O. D. E.—The albo-carbon light is far more actinic than the old argand, but it is altogether beaten by the incandescent gas light. About portraiture with the aid of this last-named illuminant we shall have something to say soon. As to the candle-power afforded by different kinds of lime-jets, there would seem to be a great difference of opinion, and this is not to be wondered at when we consider the different patterns of jets in the market. The estimate varies for the mixed jet from 200 to 430 candle-power; but since this estimate was given, improved patterns have greatly extended the power of the light.

OMNIUM.—Much to be said on both sides. The amateur has learnt much from the professional, and *vice versâ*.

B. C.—A quarter-plate portrait lens is by no means so good as one actually designed for projection work, the back combination often not admitting as much light as is possible with a correctly made lantern lens.

LITHIUM.—The carbonate has been suggested as an accelerator, but we are not able to say whether its use ensures any good qualities which are unattainable by more ordinary means. Here is a formula:—

Pyro	2 grains.
Lithium carbonate	2 "
Sodium sulphite	12 "
Water	1 ounce.

AN interesting address, delivered by M. Paul Richer at the last meeting of the French Association for the Advancement of Science, is printed in the current number of the *Revue Scientifique*. The subject is the relation of anatomy to art. M. Richer gives a lucid account of the canons of the human figure which have been adopted during various periods in the history of art, referring especially to those of the Greek sculptors, Polycleitos and Lysippos and to those of Leonardo da Vinci, Albert Dürer, and Jean Cousin. He then shows that we now have materials for the establishment of a scientific type of the proportions of the human body, so far at least as the white race is concerned. This type is not, of course, to be reproduced in the works of artists; but M. Richer thinks it may be of real service to them as a guide in the appreciation of the proportions of the different models they have from time to time to study.—*Nature*.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1805. APRIL 7, 1893.

LIBRARY

NOTES.

THE other day the City of London Electric Lighting Company were summoned at the Southwark Police Court for sending forth black smoke from the chimneys at their station at Bankside in such quantities as to be a nuisance. Engineers, experts, and others gave evidence to prove that the best smoke-consuming furnaces were used, and only smokeless Welsh coal employed. They added that which it would seem unnecessary to mention after their former statements, that the chimneys did not smoke.

ON the other side, the police inspector and his assistant proved that they watched those chimneys for half an hour, and that during that time "dense volumes of black smoke" were sent forth from them. The police inspector and his assistant evidently impressed the worthy magistrate more than did the experts and engineers with their smoke-consuming apparatus and coal that was smokeless, for the company were fined. The police evidence would certainly have been more satisfactory if it had been accompanied by a photograph of that dense black smoke.

WE trust that photographic records have been preserved of Parr Hall, St. Helens, which collapsed the other day from sheer old age. One therefore feels inclined to call it *Old* Parr Hall, although it has nothing whatever to do with the pill man. It is named after Catherine Parr, one of Henry VIII.'s six wives, and for some years, like many another old hall in this country, has been occupied as farm buildings.

THE other day, Mr. Henry Blackburn, of "Academy Notes" renown, and much well-merited renown otherwise, delivered a lecture at the London Institution, entitled "The Book of the Future." In this lecture the monotony of the printed page was descanted upon, and the modern book, so far as its mechanical parts are concerned, was voted a sham. The types, reproduced from old work of skill; the reproduction of pictures which appear to be engravings, and are not; the machine-made so-called "*hand-made*" paper—all these are shams.

THE new idea for the book of the future, as sketched out by Mr. Blackburn, is that the author should cultivate a beautiful handwriting, and that the written page should eventually appear as a photographic reproduction. If the author is also an artist, and can supply pictorial illustrations where required, so much the better.

THIS idea is beautiful in theory, but we fancy that it would hardly work out in practice. The most perfect handwriting is tiresome to read in comparison with printed type, and in this hurried life the author who *wrote* his volume would be neglected. We fancy, too, that the authors themselves would refuse to compete with the printing press in the way suggested. In most cases the mechanical drudgery would put to flight poetic fancy.

CALIFORNIAN photographers are very busy just now. The Ladies' Committee who have charge of the Women's Building of the Chicago Exhibition have determined to have a rival to the Venus of Milo to be the central ornament in the California room, and this rival they have decided must be modelled from a Californian beauty. The contest is to be by means of photographs which must be in the Paris panel form, one a full-faced view, and the other a profile. Hence, there has been a rush of intending competitors to the photographers.

The information concerning this contest is not quite so ample as it should be, and we are left in doubt as to whether the photographs are to be confined to the face only, or whether they are to include as much of the body as is shown in the famous original. Public opinion in America on the subject of the undraped form is somewhat strait-laced, and we doubt whether the sculptor will have the necessary material furnished him which will enable him to outshine Milo. The lady who has drawn up the conditions says: "The woman who is finally chosen will then be asked to pose for the sculpture. An exact likeness of the face will be made, and the form will be in the exact proportion." On the other hand, Mr. Schmid, the sculptor, says:—"If the model insists upon having the work done from measurement, why I will do it that way." An accommodating sculptor, indeed. But what will the result be like, for, as the sculptor truly observes, "A good Venus cannot be made from a tape line"?

Some months back, Mr. Jerome Harrison contributed to our columns an article on the application of celluloid films to the purposes of composite photography, and he lately brought forward the same subject in the form of a paper read before the Camera Club. It is noteworthy that Mr. Galton, the producer of the first composites, employed drawings on tissue-paper, and superposed them to form composites, before he adapted photography to the purpose in view, so that Mr. Harrison is, in a manner, harking back to first ideas.

Mr. Galton writes to Mr. Harrison about this new use of films as follows:—"I read with much interest your paper on composite photography, and congratulate you on discovering so good a process. It strikes me as a great merit of your plan that you can *fit* each film in succession over the *whole* of its antecedents. Also, supposing the light to have been disposed symmetrically, to have the power of reversing one or more of the films. It is frequent that two members of a family may be much alike, and yet the dis-symmetry of their faces may be in opposite directions. Clearly it would here be advantageous to 'composite' the direct image of the one with the reversed image of the other."

A writer in the *English Mechanic*, alluding to the common idea that colours cannot be seen by moonlight, says that he wishes that the author of this theory could see the full moon in Barbadoes. "It lights up the island like a great electric lamp, and is a very decided obstacle to sleeping at night, being shut out from the bed-chamber by no blinds or shutters. As to colours, one has only to make a tour of the flowers to see that their hues are just as easily recognisable by this as by any other white light. I must allow that, in England, I have seen a bed of geraniums look black by moonlight; but the deepest reds are easily to be distinguished in the tropics, so that it is only quantity, not quality, of moonlight that is needed." Surely, under such conditions, a moonlight photograph in Barbadoes would not need a very protracted exposure.

In an article last week in the *Daily Telegraph* on "Magic Lanterns and their Users," it is said that a leading firm of opticians still possesses Alfred Crowquill's original drawings illustrating fairy stories designed specially for lantern-slide making. It is a matter for surprise in these days of universal lantern exhibitions that no artist of repute should turn his attention in that direction. We suppose that the reason is, that competition has so cut down prices that it would not pay to design lantern pictures. We unfortunately live in times in which an artistic thing is appreciated only by the few, the general public being content with such staring, vulgar, and gaudy work as is commonly turned out by the 'prentice hand.

By the way, several capital drawings were made for the old Polytechnic in its palmy days by F. Barnard, some years before that capable artist made his name. The originals, carefully framed, we often saw at the house of Dr. Croft, one of the directors of the "Poly." Dr. Croft joined the majority about ten years ago, and the drawings—full of quaint humour—have probably been scattered far and wide.

It is significant of the times that the old-fashioned peripatetic photographer and his little box tent should be pushed out of the way by the "younger generation" with its automatic camera. During the holidays, in all the places where the peripatetic men live and move and have their being, the automatic camera was very much in evidence. When looked after by a competent operator, this camera answers exceedingly well, and turns in a good profit at twopence a portrait, simply because half-a-dozen sitters can be taken in less time than was necessary for one in the old collodion days.

Never were there such devoted patrons of photography as our Royal Family. The Duke of York, who is now in Italy with his mother and sisters, has provided himself with a camera, and was seen at Genoa, the other day, taking "snap-shots" at the picturesque fishermen on the promenade along the quay. One would like to know whether the Prince is sufficiently "thorough" to develop the plates himself, or whether he hands over this essential part of the work to somebody else.

TELE-PHOTOGRAPHY.*

BY THOMAS R. DALLMEYER, F.R.A.S., ETC.

(*Continued from page* 205).

THE portrait combination must be rapid (of large aperture) and preferably of short focus, on the score of portability.

This is corrected to the best possible degree in itself throughout the field, and so again is the "negative rectilinear." By this means I attain better quality of definition throughout the entire field, and, moreover, reduce distortion to a minimum.

The form of portrait lens employed has the means of separating the fourth (flint) lens from the third (crown) lens. If the portrait lens be used alone it will be noticed that if the flint be slightly separated from the crown that the image becomes "softened" or less sharp through the introduction of positive spherical aberration. In tele-photography we desire to get the utmost definition possible, and with the greatest amount of light, and I have utilised this form of lens to attain the opposite end for which it is used in portraiture. If the tele-photographic lens be focussed upon, and corrected for a near object, and it be then focussed for a distant one, it will be found that negative spherical aberration will be observed. By slightly separating the back lens from its neighbour the requisite amount of positive spherical aberration can be introduced to obliterate the negative spherical aberration, and the image becomes perfectly sharp. Unless the corrections of the positive element be variable, no form of tele-photographic lens could be made to give sharp images for all planes and different extensions of camera without resort to small stops, that in themselves not only materially affect the rapidity of the lens, but also reduce the amount of subject included.

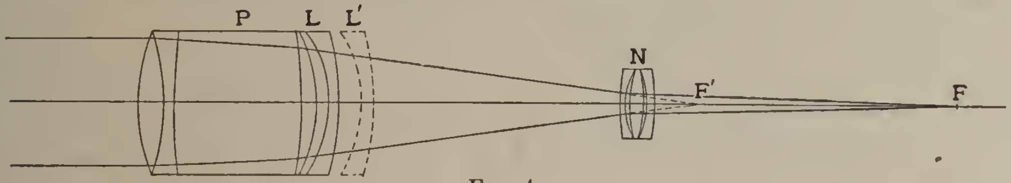

Fig. 4.

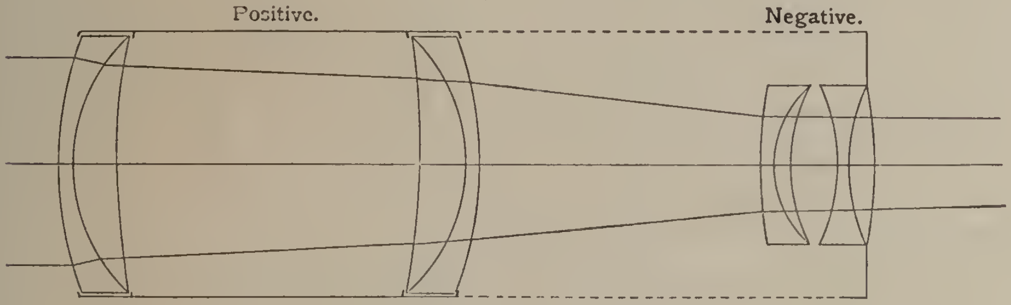

Fig. 5.

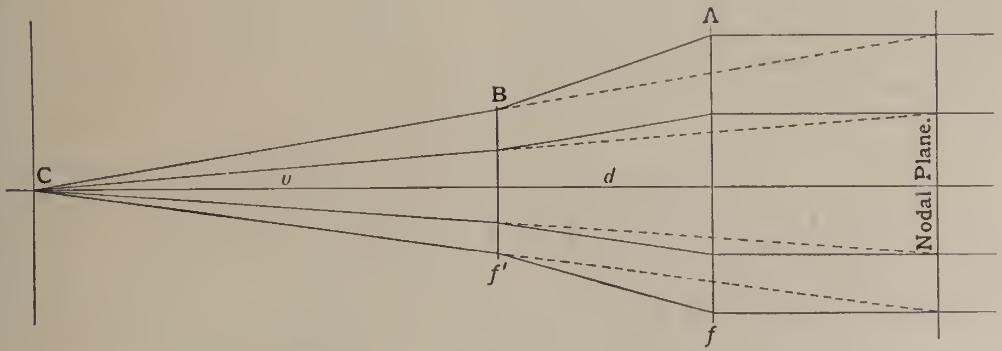

Fig. 6.

The efforts of opticians have been and are being continually put forth in the direction of the attainment of large angular aperture combined with as near an approach as possible to a "flat field."

Now if the portrait or positive lens in the tele-photographic lens is well corrected for flatness of field, in itself it will be found that there is a tendency to the *reversed curvature* of field to that which obtains in all ordinary rapid lenses. This tendency may be advantageous or disadvantageous, but is best removed, if possible, and this I have succeeded in doing. The cause of the defect is not far to seek in that the excentrical rays passing through the negative combination are lengthened more than the central ones. Nor is the remedy a difficult one : it consists in giving a greater curvature of field to the positive element. This is done by special constructions, such as I show you in Fig. 5 (corrected for parallel rays), in which the rapid positive element $\frac{E}{3}$ has an impossible amount of curvature for ordinary work, *i.e.*, used alone. In combination with the negative as a tele-photographic lens, the field is perfectly flat. Another and temporary method is to rob the portrait lens of one of its flattening elements, viz., the elements of separation, by placing the lenses in a shorter tube ; when used in conjunction with the negative combination as a tele-photographic lens the reversed curvature disappears, and the instrument is more portable and somewhat more rapid.

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* Read before the Society of Arts, March 1st.

For practical purposes it has been found best to construct a Table of references showing for different extensions of camera from the back lens—(1) the corresponding foci (2) the intensity at full aperture, and (3) the circles of illumination with the full aperture, and also the smallest stop. After the intensity at full aperture, the diaphragm apertures are arranged so that each succeeding smaller one requires double the exposure of the previous one. When the circles of illumination are known, it is easy to determine the current sizes of plates that can be covered without cutting off at the corners.

The calculations neccessary to arrive at these results are of a simple character, and are therefore given in the hope that they may prove useful.

In Fig. 6, let $f\,f'$ be the (numerical) focal lengths of the positive and negative elements, A and B, v the back focus, d the distance between the negative element and the nodal point of positive element, F the equivalent focal length of the combination. Then the magnification, defined as the ratio of the linear dimensions of image given by the combination : dimensions of image given by positive element alone, and calling this

$$M,\ M = \frac{F}{f}.$$

$$\text{Now } \frac{1}{v} = \frac{1}{f-d} - \frac{1}{f'}$$

$$\therefore\ v = \frac{f'\,(f-d)}{f'-f+d}\text{................(Back focus.)}$$

$$\frac{1}{F} = \frac{1}{f} - \frac{1}{f'} + \frac{d}{ff'}$$

$$= \frac{ff'}{f'-f+d}\text{...... (Equivalent lens.)}$$

These two formulæ and their interpretation, when applied to different types of lenses, have been neatly tabulated in a paper contributed by J. Brown, B.Sc., C.E., to the Philosophical Society of Glasgow, "On some elementary facts regarding the foci of lenses, with special reference to Dallmeyer's new tele-photographic lens," April 13th, 1891. This I reproduce here.

Table of Foci, &c.

No.	Type of Lens.	Actual Photographic Lenses.	Equivalent Focus for Parallel Rays.	Back Focus for Parallel Rays.	Optical Centre.	Rule for Conjugate Foci.	Notes.
1.	Single Positive Lens	Landscape Lenses	f		A fixed point, dependent on form of Lens	$\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$	Real, unless u less than f
2.	Single Negative Lens	......	$-f$	None.	A fixed point, dependent on form of Lens	$\frac{1}{f} = \frac{1}{u} - \frac{1}{v}$	Image virtual
3.	Doublet Positive Lenses	Rectilinear Lenses	$F = \frac{f_1\,f_2}{f_1+f_2-a}$	$BF = \frac{f_2\,(f_1-a)}{f_1+f_2-a}$	Not a fixed point, usually between Lenses	No simple rule	Lens positive. $a=0$ till $a=f_1$
4.	Doublet Positive Lens and Negative Lens	Steinheil's Antiplanat Dallmeyer's Tele-photographic	$F = \frac{-f_2 f}{f_1-f_2-a}$	$BF = \frac{-f_2\,(f_1-a)}{f_1-f_2-a}$	Not a fixed point, usually in front of Positive Lens.	No simple rule	Lens positive when $a > f_1 - f_2$ till $a = f_1$

Steinheil's antiplanat is included as one of the elements—is slightly negative in focus, although a fixed system. Petzval's orthoscopic is probably omitted through an oversight; in this case the negative element is about twice the focus of the positive element. The back focus in this case is slightly less than the equivalent focus. The quantity, d, is not convenient to measure; we shall, therefore, substitute for it in terms of v. Thus

$$\text{M} = \frac{v}{f-d} = v\left(\frac{1}{v}+\frac{1}{f'}\right)$$

$$= 1 + \frac{v}{f'}$$

$$\text{F} = f\left(1+\frac{v}{f'}\right) = f\,\text{M} = f\left(1-\frac{b}{f'}\right) + \frac{\text{E}f}{f'} \quad\ldots\ldots\ldots\ldots\ldots (1)$$

The negative element is fixed at a known distance inside the flange; if b is the distance from flange to negative element, and E extension of camera from flange to ground glass—

$$v = \text{E} - b,$$

and the magnification of the image compared to a single lens with the same extension of camera is plainly

$$\text{M}' = \text{M}\frac{f}{\text{E}} = \frac{f}{f'}$$

nearly, if the extension of camera be considerable, but

$$= \frac{f}{f}\left(1-\frac{b}{\text{E}}\right) + \frac{f}{\text{E}} \text{ accurately } \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Hence—

$$\text{D} = v\left\{\frac{a+a'}{d} + \frac{a'}{f-d}\right\}$$

$$= \frac{v\,(v+f')\,(a+a')}{v\,(f-f')+ff'} + \frac{a'\,(v+f')}{f'}$$

$$= (v+f')\left\{\frac{f'\,v\,(a+a') + a'\,v\,(f-f) + a'ff}{f'\,[v\,(f-f')+ff']}\right\}$$

$$= (v+f')\left\{\frac{a\,v\,f' + a'\,f\,(v+f')}{f'\,[v\,(f-f')+ff']}\right\}$$

When the extension is considerable approximately—

$$= \frac{\text{E}}{f'}\,\frac{a\,f' + a'\,f}{f-f'}$$

Finally, the angular diameter of the field of view is—

$$\tan^{-1}\left[\frac{a+a'}{d} - \frac{a}{f}\right]$$

$$= \tan^{-1}\left\{\frac{f\,(a+a')\,(v+f') - a\,v\,(f-f') - aff'}{f'\,[v\,(f-f')ff']}\right\}$$

$$= \tan^{-1}\frac{v\,(a'f + af') + a'ff'}{f\,[v\,(f-f')+ff']}$$

$$= \tan^{-1}\frac{a'f + af}{f\,(f-f')}$$

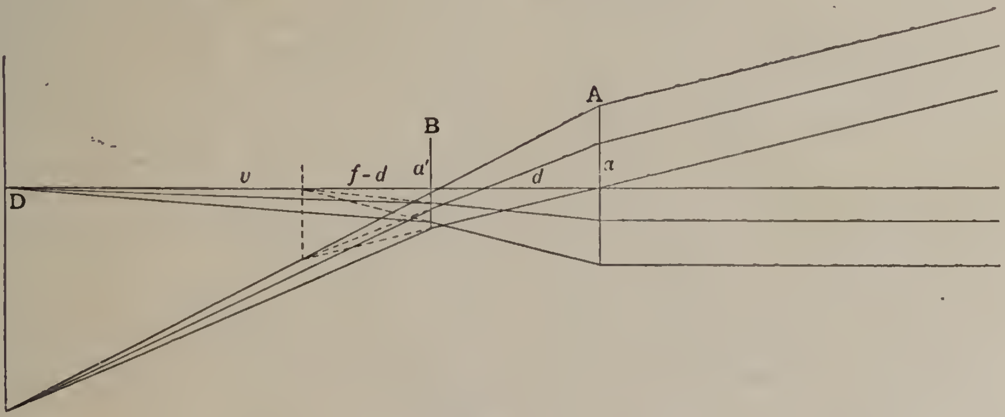

Fig. 7.

f I represent the intensity of positive element,

$$\text{Intensity} = \frac{\text{I}}{\text{M}} = \frac{\text{I}f}{\text{F}} \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Next, as to the size of plate covered at any given intensity. Referring to Fig. 7, the diameter of the circle beyond which no light can pass being called D, and the apertures of the positive and negative elements a and a' respectively—

$$\frac{\text{D}-a'}{v}\quad\frac{a+a'}{d} = \frac{a'}{f'}.$$

Now we found

$$\frac{1}{f-d} = \frac{1}{v} + \frac{1}{f'}$$

$$\therefore\quad d = f - \frac{v\,f'}{v+f'},$$

$$= \frac{v\,(f-f')+ff'}{v+f'}$$

and is therefore nearly constant.

[Mr. Dallmeyer here introduced a number of lantern illustrations which showed in a very satisfactory manner the value of the tele-photographic lens. These included a number taken by Captain Simpson, of the Intelligence Department of the War Office.]

In conclusion, I can only add that I have endeavoured to trace, and place before you, all that has been hitherto accomplished in the direction of the attainment of enlarged primary images. The principle involved is contained in the rudiments of the science of optics; the application of the principle involved was first utilised by George Dolland, as set forth 60 years ago, in applying Barlow's lens to the astronomical telescope. I can only claim to have utilised the same principle in photographic lens construction, and hope the work done in this direction may be of service in the science of photography.

PATENT OFFICE

PHOTOGRAPHY IN AUSTRIA.

BY DR. EDER.[*]

On the Developing Power of Pyrogallol and Sodium Sulphite without the Addition of Alkali, as compared with Amidol.

FOR some years it has been accepted as a settled fact that one can obtain a powerful pyrogallol developer usable for the normal conditions of practical photography by means of silver-bromide gelatine only in an alkaline solution.

But it is a question how will a mixture of sodium sulphite and pyrogallol, with the addition of alkalis (soda, potash, ammonia, &c.), act on silver-bromide gelatine plates.

In regard to this matter, I said in my book, "Photographie mit Bromeilliergelatine," published towards the end of the year 1885 (third edition, 1886, p. 99): "Sulphite of soda and pyrogallol dissolved in water are alone a weak developer for silver-bromide gelatine plates (without the addition of any alkali); but the effect is slight and very slow." Paul Poiré, in the *Comptes Rendus* (1889, p. 13), made an analogous assertion—viz., that a solution of 1·5 grammes of pyrogallol dissolved in 100 cm.^{3} of a watery solution of sodium sulphite (1 ÷ 4) develops silver-bromide gelatine. He remarks that this effect takes place when the sodium sulphite is quite free from soda. Captain Abney had stated that pyrogallol with sulphite without the addition of an alkali into a watery solution is able to develop the latent silver-bromide image. In my experiments on the developing power of pyrogallol with sodium sulphite made into mercantile sodium sulphite since 1885, I found only a slight slow effect. As long ago as 1890 I summed up my experiences by stating it to be possible to develop considerably over-exposed plates (landscapes) with a mixture of pyrogallol and sodium sulphite. Normally exposed plates, especially ordinary photographs taken in the portrait studio, either cannot be developed at all without the addition of an alkali, or else, if a sulphite which produces a strong alkalic reaction be employed, the development is so slow that such a developer is useless for practical photographic purposes. This holds good still more for instantaneous pictures of short exposure, which, if developed with a solution of pyrogallol sulphite, are as good as useless. For this reason mixtures of pyrogallol and neutral sodium sulphite are not employed in photographic practice anywhere, because they are perfectly useless for the work of an ordinary studio. If these pyrogallol developers were practically useful without any addition of alkali, one would in general be glad to use them, because the powerful reaction of the developers has many drawbacks. This has induced chemists to discover such developing substances as, mixed with sodium sulphite, would act really powerfully and quickly, and would be of practical utility with normal exposure, which is not the case with pyro and sulphite. This led to the discovery of the amidol developer. It acts as a powerful, rapid developer with sodium sulphite in a neutral or slightly acid solution, being as energetic as the most powerful alkaline pyro developer, which fact Herr Hauff was the first to recognise.

It must be noticed that mercantile "neutral sodium sulphite" varies much, its reaction being sometimes more and sometimes less alkaline. The different commercial sorts of this salt act quite differently with increasing alkaline reaction. It is a matter of course that such kinds of commercial "sodium sulphite" as produce alkaline reaction by reason of the addition of foreign substances will act as developers with pyro without the addition of *another* alkali, because they already contain one.

Herr Valenta and I carried out the following series of experiments with chemically pure sodium sulphite, which alone produces a weak alkaline reaction. Our object was to exactly determine the action (1) of pyrogallol with sulphite on the one hand, and (2) of amidol with sodium sulphite on the other, as developers without alkali.

The sodium sulphite manufactured by the "Actiengesellschaft für Anilinfabrication" at Berlin may be considered a pure kind. It, together with other commercial sorts of sulphite, was used in the following experiments. With these samples of sulphite we prepared solutions of 50 parts of sodium sulphite in 1,000 parts of water, and made comparative experiments with pyrogallol sulphite on the one hand and on the other with amidol sulphite. In both cases 5 grammes of the developing substances were dissolved in 1 litre of the above-mentioned (5 per cent.) solution of sodium sulphite. The pyrogallol sulphite developer always produced alkaline reaction, the amidol developer a slightly acid neutral one, while the amidol used in the experiments (sulphuric diamidophenol) produced a distinctly acid reaction.

As a test we exposed silver-bromide gelatine plates obtained from Dr. Schleussner, of Frankfort, and similar ones from Sachs, of Berlin, in the portrait studio, carefully keeping to the same time of exposure and similar circumstances, two carte-de-visite pictures on each cabinet plate, exposure two to four seconds. With amidol the picture was perfectly developed in three to four minutes, and with amidol developer produced a slightly acid reaction, and an exposure of two seconds we obtained a negative with shadows and lights perfectly worked up. On the other hand, a plate similarly exposed with pyrogallol sulphite developer analogously composed did not produce any image at all in the same length of time. The comparison being completed, the same results were always obtained. Further, we carefully tested the behaviour of pyrogallol in a very concentrated neutral solution of sodium sulphite. For this purpose (in conformity with Poiré's experiments mentioned above) we prepared a solution of 250 grammes of sodium sulphite in 1,000 cm.^{3} of water, and added to it 15 grammes of pyrogallol. Also, this enormously concentrated developer with most kinds of sulphite produced an image on silver-bromide gelatine only after twenty-five minutes —*e.g.*, when the crystallised sodium sulphite of the Berlin Actiengesellschaft für Anilinfabrication was used; with some sorts of sulphite it took thirty to fifty minutes to complete the development. These data show that this developer is useless for the practical photographer. The difference between this developer and the amidol developer becomes still plainer if it is completely neutralised with a few drops of sulphuric acid, or partially neutralised till weak alkaline reaction takes place. The pyrogallol developer thus treated did not produce *a trace of an image in two and a half hours*, whereas the acidified amidol developer developed the image perfectly in *three minutes.*

---

[*] From the *Photographische Correspondenz*.

The characteristic action of amidol consists in its being a powerful, rapid developer in perfectly neutral or even slightly acid mixtures with sodium sulphite, so that the addition of such quantities of alkali (soda, potash, &c.) as will make good developers with pyrogallol damage the developing power of amidol. Therefore, amidol is to be considered a new type of developer, which, with sodium sulphite, produces an excellent rapid developer when alkalis are absent and water is present.

PHOTOGRAPHY IN RELATION TO AGRICULTURE.

BY L. GRANDEAU.

IT is scarcely possible to sufficiently estimate the services which photography, among other manifold benefits, is likely to render to agriculture.

If it were possible to distribute throughout the country photographs of the results obtained by a judicious use of fertilising methods, some of which double the natural productions of the soil, it would do more for the progress of the most primitive of our industries than could be achieved by any amount of talking or of fine writing.

No kind of instruction is so valuable, more especially to persons who cannot, or do not care to read, as teaching by pictures. Now, the photograph, being an absolutely exact representation of an object, possesses an incontestable superiority over the most correct drawings as to fidelity. There is little doubt that photography will take, in the near future, a prominent place among the methods employed in our rural schools, and that it will eventually become the most useful auxiliary of the instructor, by affording practical illustrations of the theories which he enunciates. Photogravure, with its facility of reproducing an unlimited number of copies of an original photograph with comparative cheapness, seems destined to completely revolutionise most of our methods of teaching, and notably those which treat of the first rudiments of agriculture.

As an instance of the utility of photography in relation to agriculture, it has been conclusively demonstrated, by some recent photographs, that organic matter, as represented by farm manure, plays an important part in vegetation, serving as a kind of digestor and vehicle to mineral matter, in order to place it at the disposal of the plant, the roots of which constitute the organ of absorption, performing functions with regard to the vegetable closely corresponding to those of the intestinal apparatus in the animal.

The utility of stable manure has also been proved more conclusively than it could have been by any amount of reasoning or argument. By numerous examples it can be shown how much help photography can give in studying the problems of vegetable physiology. A beautiful plate has been taken by Mons. Aimé Girard (Professor of the Conservatoire National des Arts et Métiers) of his experimental studies of the culture of beetroot sugar and of the potato, giving a picture of the development of the roots of these vegetables which no drawing could present with similar fidelity.

The learned Professor of the Conservatoire proposed to study as thoroughly as possible the conditions of the formation of sugar in the first of these plants, of starch in the second, and to seek by chemical examination of these vegetables at various stages of their development the formation and evolution in the plant, of the leaf to the root, and to the tubercle, of the immediate principles (sugar, &c.) which give to these vegetables their industrial and alimentary value. A succession of photographic reproductions has enabled Mons. A. Girard to place under the eyes of agriculturists the progressive development of leaves and roots in such a manner as no drawing could ever have done.

Mons. Girard has established in his laboratory a special photographic apparatus for the reproduction of microscopic preparations, with a view to the projection of these preparations in the course of his lessons. This application of photography to teaching is invaluable, presenting as it does, with perfect distinctness, an object of microscopic dimensions, reproduced on a scale which renders all its details clearly visible to a large number of spectators.

Among the numerous examples of the services rendered by photography to agricultural science and vegetation, the last, but by no means the least, is the reproduction of exotic cultivation, of which the best description or drawing can give only a very inadequate idea, but of which some magnificent photographs lately taken give every detail with exact and unerring fidelity.

It only remains to add that the industry of photography, owing to the extreme cheapness of its reproductions, makes it possible to distribute in our schools and throughout the length and breadth of the land specimens which closely correspond with the descriptions which accompany them. In this way photographic art renders to the country a service of the highest order, since it contributes to agricultural progress, of which the aim and the result is, a life for the masses which combines a maximum of comfort with a minimum of expense.—*Paris Photographie.*

* * *

The Central Photographic Club.—We understand that the committee of the Club, as the result of several meetings, have formulated a set of rules for the government of the Club, and have also come to a decision as to the financial basis upon which it will be carried on. A recommendation as to suitable premises has also been arrived at. In addition to the foregoing several other matters of importance will be laid before a meeting of intending members and others interested in the Club, to be held at the Memorial Hall, Farringdon Street, on Monday evening, April 17th, at eight o'clock.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, APRIL 7, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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NEGATIVES WHICH KEEP WELL.

THE preservation of negatives is a matter of such prime importance that no excuse is needed for once more calling attention to the subject. There can be no doubt that gelatine emulsion photography, whilst conferring upon the worker powers that in the old wet-plate days were not even dreamt of, has given us a support for our images which is far more perishable than collodion, a condition inseparable from its hygroscopic nature. As a rule we none of us make our failures as public as we do our successes, and no man would be likely to boast that his negatives had gradually deterioriated and had lost much of their pristine pluck and vigour, for the admission would seem too surely to point to carelessness of storage, or possibly hurried manipulations. But that such destruction is not uncommon we are convinced from inquiries and reports which have from time to time reached our ears, and which are sufficient to convince us that a photographic image on a gelatine base must be safeguarded in every possible way if it is to remain a joy for ever.

Our German contemporary, *Photographisches Archiv*, some time ago, recognising the importance of this matter, issued a circular to its readers and all others interested in photography, asking certain questions with a view to getting information with regard to the keeping qualities of gelatine negatives. The inquiries had reference to the date at which negatives had been made; whether they had retained their original clearness; if they were free from stains; if they had been varnished, intensified, or reduced, and if so by what methods; how the negatives had been stored; by what process they had been fixed and washed; and whether any means other than washing had been resorted to for the elimination of hypo. The circular also invited any further observations upon the durability of negatives which the recipients might feel inclined to offer.

In response to this circular several replies have come to hand, not only from Germany, but from Austria and other countries. Many of them are from well-known workers, some of whom refer to gelatine negatives produced as early as the year 1879. It may be admitted that if a negative has lasted for ten years it will, if kept under the same conditions, last for a much longer period. Comparatively few negatives, indeed, are required to last for so long a time. In the case of portraits of royal personages and public characters it is different, and those who own such valuables will take care to store away a diapositive produced by some process of known permanence, from which a fresh negative can be obtained at any time, should any mischance happen to the original one.

It is comfortable, however, to learn that these ten or twelve year old negatives have, as a rule, stood well where they have been fixed and washed with nothing more complex than *aqua pura*. Many are the recipes which have been published for removing from the film the last trace of hypo; but these replies would seem to indicate that, in the endeavour to exorcise one demon, we run the risk of admitting another, capable of far more mischief. We have always held that a thorough drenching of a negative under a rose tap is the most simple and the best way of clearing it from the fixing salt, and tests will show that after a very few minutes of such a shower-bath nearly every trace of soda has disappeared.

Intensifying with mercury has stood the test of time in a few instances; but in the majority mischief has ensued. But in this case the questions asked might surely have been amplified. Mercurial intensification is in reality a wide term, covering a multitude of different processes. We not only want to know whether mercury was applied to the plate, but we should ascertain what followed the mercury, whether ammonia, silver cyanide, ferrous oxalate, or other agents which might be named. We should also know, before condemning the intensifying process generally, whether the precaution of varnishing the film as a protective after-operation has been taken. But, after all, the number of gelatine negatives which need intensification, and which, at the same time, are valuable enough to be worth keeping must be very small. The experienced worker seldom has recourse to intensification, for he prefers to obtain necessary density in development, and knows how to do it.

The question of storage is really the principal factor concerned in the preservation of gelatine negatives; and the system which appears to give the best results is that of keeping them in grooved shelves, so that the air may pass freely between them. It is, of course, understood that the place of storage shall not be of a damp nature, and in very wet weather it may be necessary to resort to artificial heating. But in any case it may be said that if as much care be taken of a store for gelatine negatives as is commonly bestowed upon a living room in a well-ordered household, the contents will be safe from harm. Negatives which are thus treated will keep, if they do not carry the germs of chemical destruction through careless manipulation or insufficient washing, but they should certainly be varnished.

ON THE APPLICATION OF PHOTOGRAPHY TO SEISMOLOGY AND VOLCANIC PHENOMENA.

BY PROF. W. K. BURTON.

THERE is scarcely a branch of art or science that does not at the present day call in the aid of photography, either directly or indirectly, and seismology is no exception. It may, therefore, not be out of place, in the case of a journal particularly devoted to this subject, to enumerate and briefly describe the various applications of photography that have actually been made, or that are suggested, in connection with earthquake and volcanic phenomena.

First, of course, we have the common application of photography to record the effects of earthquakes and of volcanic eruptions. The value of photographs of this kind cannot be over-estimated; but it will not be fully appreciated till considerable time has elapsed, and until future seismologists want to compare the effects of earthquakes and eruptions of their time with those of the present time. We can imagine of what value they will become if we think what we would give for an accurate set of photographs of the effects of any historical earth quake or eruption, say of the last century. Undoubtedly, a hundred or two of years hence, it will be of the greatest importance to geologists to be able to compare the condition, for example, of Bandai-san with its condition within a few days of the eruption that blew its upper half into the air nearly five years ago. The more rapid changes in the interior of the craters of active volcanoes can also thus be noted with advantage. Even such secular movements as the gradual rising or depression of coasts may also, perhaps, be recorded more definitely than they have been heretofore.

There is one thing that should be emphasised here, and that is the importance of preserving systematically all photographs of the kind mentioned, printed by some permanent process. In cases where the photograph is of such general interest that the outside public may be looked upon for the purchase of anything over about fifty copies, the collotype process is, at the time of writing, to be recommended; in other cases, the platinotype—in spite of its present comparative expensivenes on account of the recent great rise in the price of platinum. Up to the present time, so far as the writer knows, such photographs as are of particular seismic interest are to be found scattered through various publications, but have not been systematically brought together in any single collection.

Prof. John Milne has used photography in determining the curvature of the sides of volcanoes.

That is to say, the inclination and curvature were measured from photographs at the time in existence. In using photographs for this purpose it is necessary to be sure that the swing back of the camera was vertical at the time the photogragh was taken, otherwise the measurements will not accord with the truth. Now, although photographers have been pretty well drilled into appreciating the necessity of having the swing back of the camera vertical in the case of buildings, there are few that appreciate the necessity in cases where the subject contains no right lines, and the greater number of photographers "tip" the camera without bringing the swing back to the vertical again in photographing a high mountain. This is, indeed, one of the reasons for the commonly unsatisfactory rendering of mountains by photography. The effect of tipping back the camera, without readjusting the swing back, is to give an effect in the photograph as if the mountain were leaning away from the camera to just the amount that the ground glass leans back. In other words, the slope of the mountain is reduced, and the mountain is dwarfed. There may also be slight errors due to refraction.

We next come to another set of uses of photography that need little more than enumeration. Thus the record of an earthquake, by nearly every seismograph, is scratched on smoked glass, the smoke film being afterwards fixed with common photographic varnish. It goes without saying that photography is the best way of obtaining copies of such records. The blue process is most commonly used, although, in the case of the small diagrams given by bracket and duplex pendulum seismographs, more delicate processes have a decided advantage. Except for want of permanency, albumenised paper is to be preferred to anything else.

It scarcely needs to be stated that photography has been useful in producing illustrations of seismological instruments also, in a number of matters of detail, such, for example, as the production of scales, with finer division than any that were readily procurable machine divided.

We now come to a consideration of more special adaptation of photography to seismology, and, to avoid the necessity for repeating his name every few lines, I state here that nearly all these adaptations are the work of Prof. John Milne, F.R.S., the writer sometimes giving assistance in some of the purely optical and photographic parts.

Some two years or so ago an attempt was made to find whether any change in electrical potential between the earth and the atmosphere preceded, accompanied, or followed earthquakes. An instrument to keep a continuous potential record was devised on the following lines. One terminal of a mirror galvanometer was connected with a metal plate in a well of considerable depth, the assumption being that the potential of the well water would be the same as that of the earth at the same depth. The other terminal was carried to a metal plate at the ground level. A beam of light was thrown on the galvanometer mirror, and, being reflected, was received on a photographic plate, narrow and long, kept moving slowly in the direction of its length by clockwork. A continually changing potential was shown, and there were several cases in which there were decided deflections at the times of earthquakes, but there was not sufficient consistency in these to make it evident that they were the result of anything but the mechanical effect of the shocks on the galvanometer. The subject is one that yet requires attention.

There has been much investigation of "earth tremors" and "earth tilting." We are accustomed to look on the "solid earth," apart from its planitary motions, as the very type of what is stable and steady, but it is now known that it is never at rest. It is always trembling, and there is reason to believe that its surface is often slowly tilting in one direction or in another. These motions are extremely small: to get indications of them, much less to measure them, is very difficult, and, up to the present, it has been impossible to separate them, one from the other, with certainty. Thus no tremor recorder has yet been made of which it can be said with *certainty* whether it is recording true tremors or "tips." An ordinary pendulum will be affected by "tilts" but not by tremors, unless these happen to coincide with its period. The difficulty is to record in any way the extremely small motion of the bob of the pendulum. A partly successful attempt was made to solve the difficulty by photography. A silver bead was suspended by a silk fibre in a hollow stone column, which prevented atmospheric influence. A beam of light was thrown on the bead, and the image of the point of light, passing through a micro-objective, placed vertically below the bead, gave an image of the spot of light on a plane at a considerable distance below it, along which a photographic plate could be made to travel by clockwork, the motion of the bead being, of course, greatly multiplied—being, in fact, multiplied in the ratio of the distance between the bead and optical centre of the lens[*] and the distance between the optical centre[*] of the lens and the plate receiving the image.

A word or two should be said on the optical principles here involved. If a silver bead were a perfect sphere, or indeed, if the surface were everywhere convex, the form only approximating to a sphere, the spot of light produced by the reflection of any source of light, say a lamp flame, could be made as small as might be desired, without being reduced in brightness. The further the source of light is moved away from such a bead, the smaller becomes the spot, but its brightness remains the same and is, indeed, at all distances, leaving air absorption out of the question, the same as the source of light itself, less a constant percentage of loss on account of absorption of light at the reflecting surface. This arrangement is, in fact, the "artificial star" used by opticians in testing telescopic and other objectives, when it is not convenient or possible to focus on an actual star.

It was thought that, in the case of this instrument, as the spot of light could be made indefinitely small, at will, the image of the spot could be made as small as might be desired, however great the amplification. It was found, in practice, that this was not the case. If the amplification were great enough to be useful, the spot of light was too large to draw anything but a very wide line. The lens was a high class $\frac{1}{4}$-inch micro-objective, and the fault was probably not in it. It is likely that the bead was not really convex throughout, but that the surface consisted of minute facets, or, more likely, grooves. If a bead of mercury could by any means be used the results would probably be much better.

Excellent results have been got by the aid of photography by the tremor recorder described in a report on the Volcanic Phenomena of Japan. (British Association Reports, 1892.)

The only difficulty here is that it cannot be known for certain whether these instruments are showing tremors or "tips." In this case the light passing through a narrow vertical slit, behind which there is placed a small lamp, passes further through an objective, is received on the mirror, and is from it reflected on to a horizontal slit in the front of a box which contains a photographic plate moving vertically by clockwork. Of course any motion of the mirror of the instrument, whether produced by tremors or "tips," is amplified by the beam of light, whilst the horizontal slit cuts off all superfluous light, so that a spot only reaches the plate. Daily observations were taken on plates 12 inches long, $2\frac{1}{2}$ inches broad, moved by clockwork, at such a rate that they took 24 hours to travel their whole length. With this slow travelling vibrations were not separately registered. The breadth of the line across the plate indicated the amplitude of the vibrations at any particular time, and showed that they attained a maximum at intervals of five to ten minutes. In working with these slow speeds it was found that the light of a small kerosene lamp was ample, if the plates were rapid, but it was considered advisable to get a record of the actual separate vibrations during "tremor storms."

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[*] More strictly one of the "principal points" of the lens.

[*] More strictly one of the "principal points" of the lens.

To do this the plate was caused to travel rapidly, at the rate of 12 inches in about 30 seconds. With this rapid travelling the light of a lamp was quite inadequate, and a magnesium light produced by the burning of magnesium ribbon was used. Diagrams have been made illustrating the sort of records that were got on the slow travelling and on the quick travelling plates, showing the result on a slow travelling plate, actual size, representing a part of the plate only, and showing the result on a quick travelling plate.

Of course the line of light that did the actual photographic work was an image of the slit, which slit was made very narrow. I was surprised, in connection which this, to find how little difference it made what kind of objective was used to cast the image. A high-class portrait objective was suggested, as on account of the perfect correction for both the spherical and chromatic aberration of the pencil's axial, or nearly so, I thought that the results would be much superior to those got with an inferior lens. To my surprise there was very little difference between the results got by the use of such a lens and those got by the use of a single double-convex, or "crossed," lens, not even achromatised.

In 1887 MM. Fouqué and Michel Lévy described a set of experiments they had made to determine the rate of transmission of shock of an earthquake nature, produced by exploding dynamite, and in other ways, through different kinds of soil, using a photographic arrangement for recording the time and durations of vibrations. An incandescent electric lamp threw a beam of light at an angle through a lens and on to the face of mercury in a dish. The reflected beam of light was brought to focus on a revolving plate. If there were no motion, of course the light simply drew a circle. If there were any vibration, the beam of light was set in motion, and the circumference line of the circle was widened, and became indistinct. Thus the beginning, duration, and ending of the motion were indicated.

So much for what has already been done. It may be worth the necessary space to say a word or two about applications of photography that are, as yet, only contemplated.

In the case of all seismographs at present in use the "steady point" is a comparatively heavy mass of metal. There are no objections to this in the case of slight earthquakes, but, in the case of great ones, when we have tilting, the mass is liable to over-swing the mark and to exaggerate the motion. There is also the objection that it is never known for certain whether "tips" or lateral motions are being registered. It is possible that this difficulty may be got over by the use of a very light "steady point"; but, in such a case the ordinary method of drawing the record by a point scratching through a smoked film on glass will not be admissible, as the friction would be too great. It will be necessary, in this case, to resort to photography, which introduces no friction at all.

At places where no regular seismological observatories are situated it is often desirable to have a record of the time of occurrence of earthquake. The simplest way of doing this automatically is to have an arrangement whereby a clock is brought to a stop at the moment an earthquake begins. One objection to this arrangement is that thus stopping a clock makes it often difficult for observers to reset it at standard time. It has been suggested that a photograph of the face of a common watch might be taken at the instant an earthquake occurs. Were earthquakes so considerate as always to take place in the day time, there would be very little difficulty about the affair, but unfortunately they are not, and the difficulty is about a night illuminant, because, of course, the exposure must be very short to show the seconds hand of a watch fairly well, and this necessitates a very bright artificial light. Some experiments made several years ago were very encouraging. Since then "magnesium cartridges" have been introduced, and there is no doubt that an arrangement could be devised whereby one of these could be ignited at the instant an earthquake occurred, and, if the ignition took place fairly near the dial of a watch, a photograph showing the hands could be made even with a lens of only moderate angular aperture. It is somewhat doubful, however, whether such an instrument could be placed in the hands of one unskilled in the use of scientific instruments, and the object of watch photography is to get an appliance that may be placed in the hands of anyone.

On the other hand, it has suggested itself to the writer that the difficulty might be got over by fixing a minute silver bead on the end of each of the three hands of the watch. On the principle described above, in connection with the pendulum tremor recorder, the spot of light reflected by such beads ought to impress themselves on a plate with a fairly short exposure, even if the light be nothing more powerful than an ordinary lamp. The arrangement whereby a camera, with shutter to be released by an earthquake, a watch, and a lamp might be enclosed in a box so as to effect the desired result would not be complicated.

There are various other investigations in connection with which photography may possibly be used. Thus, although the motion of an earth particle during an earthquake has been very fairly investigated, there are still wanting data as to the relative motion of two earth particles at some distance from each other. It is of great importance to know what such relative motions are, as, according to whether the motions of each particle at some distance apart are nearly in the same phase at the same time, or are in entirely different phases, is the effect of an earthquake on a building due to the inertia of the mass alone, or is due to racking. The construction of buildings to best resist these two destructive influences would be entirely different.

It is possible that photography may be used in connection with such investigations, but it is more probable that entirely mechanical means will be employed.

If the very long water level (at least several miles) proposed some time ago by Prof. Milne to discover whether there is any slow, tipping motion of the land in certain planes, be carried out, it may be found convenient to register the height of the water at the two ends of the level photographically.

It would, however, be possible to go on indefinitely enumerating the purposes to which photography might be used in connection with seismology, but those given must suffice.

ABOUT SOME PICTURES.

BY SOL., JUN.

We have been told recently, by a great Authority, that Photography is not Art and never can be. Do not let us be downhearted under these awful circumstances. Let us, we photographers, go and look at the Artists' Art (small "p" for photographers, and a capital "A" for Art and Artists, please Mr. Printer), at the Grafton Gallery, where, among other pictures, is the much flattered and also abused "L'Absinthe" (*vide* the *Westminster Gazette*), and which really is uninteresting, being only ugly, coarse, and unfinished. Don't go to look at the good pictures, of which there are very, very few. We can always see good works at the National Gallery, and many other places, but go and enjoy the specimens of the latest thing in pictorial Art. We have hitherto been content to take our photographs from Nature, with the view of giving ourselves and our friends pleasure, by having by us a recollection of some beautiful scene that has interested us, and we have taken our despised photograph with the idea of making the most of such beauty as was before us. We have all been wrong. The ugly, the monstrous, and the untrue is evidently the aim of the Newest and Modernest of Artists, as exemplified at the above-mentioned Gallery. I have marked a few of the choicest things in the catalogue. No. 14 : "Eve," life-sized figure, no features and no hand. You see, if you can't draw hands or faces you leave them out. No. 10 : "June," a girl's (or doll's) head surrounded by, apparently, cauliflowers. No. 28 : "Disturbed Repast," a fox eating something—as far as one can make out, his own legs—and standing on bright, *blue* snow. We have heard of the stage carpenter at a theatre who, having to represent falling snow by white paper and, finding himself out of white, used brown instead, with the consolatory remark that, "if we can't snow white we must snow brown," but blue snow rather leaves him behind. No. 33 : "A Galloway Landscape" is quite too utterly, too, and a very pleasant five minutes can be spent in trying to discover what it is about. Close by is a portrait by Whistler, which, by the propinquity of amazing pictures. looks quite highly finished and absolutely understandable, a thing which would horrify Mr. W., for, as he says himself, "to be understood is to be found out." Nos. 85 and 87 : female studies, are gems, that is if you can fathom them. No. 98 : Portrait of lady, life size, with a chrome-yellow face, and only one side of her lips red, and that in a blob, as though an over-ripe cherry had been thrown at her and badly aimed. No. 102 : "The Punishment of Luxury," Himalaya Mountains in the background, in the middle distance a purple something—whether cloud, or ground, or what, it is not for me to say—but whatever it is, it serves as a resting-place for a lady with two heads, one in the usual place, and the other where her feet ought to be, and who gaily floats upon her back. Luxury must indeed be a sin, if the punishment for it is to be two-headed, and compelled to lie on your back upon nothing. No. 132 : "Partridge Driving, with portrait." The portrait no doubt is excellent, if you could see through the back of the canvas, for, as the gentleman's arm entirely covers his face, the ordinary observer is left somewhat in a state of conjecture. No. 144 : "Samuel and the Witch of Endor," represents an elderly gentleman with a long thin body and a beard, in what looks like a railway accident, or explosion, in a tunnel of the Underground Railway. Nos. 301 and 301a, by Degas : "The Little Student" and "The Rehearsal." The first is a chalk drawing of a boy with a proboscis, and the second is a picture of something or other happening to a violoncello, or double bass ; the onlooker can weave his own story to taste. Whether as a delicate satire or a mistake, I know not, but in the gallery named "Artists' Gallery" there are only eight pictures—this looks invidious, almost as though the other exhibitors might be called by any other name.

Really, gentlemen, and photographers, if you want a treat, a real treat, and all for a shilling, go and see this show. It will comfort you and raise your drooping spirits. You will go in, doubtless feeling sad because you are only a photographer, a man who works a machine, but it is more than probable that you will emerge from this abode of the worship of the ugly, thanking your stars that you are not an Artist, at any rate a Grafton Gallery one.

CORRESPONDENCE.

PHOTOGRAPHIC CONVENTION, UNITED KINGDOM—PLYMOUTH MEETING, JULY 3, 1893.

Sir,—May I ask you to give prominence in your paper to the fact that the circulating set of slides, issued by the Devon and Cornwall Camera Club in connection with the forthcoming meeting of the Convention, has been lost in transit?

As I cannot recover any trace of them to the present I am reluctantly compelled to provisionally cancel their engagements, but will put them on the road again as soon as I recover them, and will arrange fresh dates for those societies that have been disappointed.

To the present I have absolutely no information as to their whereabouts, and can only express my regret to all who have been disappointed.

R. Hansford Worth, Hon. Local Sec.

42, George Street, Plymouth, March 28, 1893.

STATUESQUE PHOTOGRAPHY.

Sir,—In answer to your correspondents on the above subject, kindly permit me to say, through the medium of your valuable paper, that through seeing the results obtained by G. B. Bradshaw & Co.'s process, I was induced to enter into an arrangement with them, with a view to represent them for the sale of licenses to work the same. Such arrangements are now complete, and I shall have pleasure in giving full particulars to all persons interested.

Chas. C. Bradshaw.

Ducie Chambers, 57, Market Street, Manchester.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

5,350. **Albert Fritz Schoerle**, 63, East Street, Brighton, "A Field-Glass Camera."—13*th March*, 1893.

5,396. **Nellie Crouch**, 122, Newington Butts, London, "Improvements in Hand or Detective Cameras and Shutters which can be used with other cameras to advantage."—13*th March*, 1893.

5,504. **Alfred Julius Boult**, 323, High Holborn, London, "Improvements in or relating to the Manufacture of Films for Photographic Purposes." (T. H. Blair, France.)—14*th March*, 1893.

5,828. **William James Lancaster**, 6, Livery Street, Birmingham, "Improvements in Photographic Cameras and their Accessories."—18*th March*, 1893.

5,846. **Jules Damoizeau**, 6, Lord Street, Liverpool, "An Improved Photographic Apparatus."—18*th March*, 1893.

5,922. **Henry Grant Madan Conybeare**, The Hut, Ingatestone, Essex, "Improvements in Apparatus for Separating and Manipulating Plates, Cards, or Films, primarily applicable to Plates, Films, &c., in Photographic Cameras."—20*th March*, 1893.

5,932. **Otto Magerstedt**, 28, Southampton Buildings, Chancery Lane, London, "An Improvement in the Manufacture of Photographic Plates."—20*th March*, 1893.

5,980. **Arthur Charles Smith** and **Albert Arthur Smith**, 238, Albert Road, Peckham, London, "An Improved Hand Camera."—21*st March*, 1893.

5,993. **Charles Coventry**, 13, Alexandra Buildings, Bixteth Street, Liverpool, "Improvements in or appertaining to the Exposing Devices of Hand Cameras, or the like."—21*st March*, 1893.

5,994. **Charles Coventry**, 13, Alexandra Buildings, Bixteth Street, Liverpool, "Improvements in or appertaining to the Exposing Devices of Hand Cameras, or the like."—21*st March*, 1893.

6,335. **Joseph Henry Rosoman**, 166, Fleet Street, London, "Improved Construction of Tripod Framing for Photographic Cameras, Music and Reading Desks."—24*th March*, 1893.

Specifications Published.

5,744. 23*rd March*, 1892.—"Cameras." W. Palmer, Westfield, Reading, Berks.

The object is to reduce the size of hand-cameras and to enable rapid focussing. The apparatus consists of a frame or part known as the front of the camera (to which is attached the lens and shutter), a central frame, and a frame known as the back of the camera (arranged for holding the negative), which frames may be of any convenient shape, and are connected together from points within or without their sides by a system of lazy tongs, which may be applied to either two or more sides of the camera. The systems of lazy tongs are in planes either parallel or at right angles to each other, and the centres on which the parts work are fixed on the front central frame and back respectively, thus ensuring a rigid and parallel backward and forward movement of the front and back, the central frame being at the same time maintained at the proper distance between the front and back, no matter what may be the amount of expansion of the tongs. The movement of the lazy tongs also enables a focus indicator to be arranged. Within or without the tongs is a non-actinic casing capable of expanding or contracting with the movement of the tongs.

8,194. 30*th April*, 1892.—"Photographic Printing Frames." C. Beck and F. O. Bynoe, 68, Cornhill, London.

The frame is formed preferably of metal, having raised sides and an open front-end to enable the glass to be readily placed in position. Along the back-end of the frame is fixed a spring-clipping jaw of suitable length and provided with a lever-handle, by which it can be readily operated when it is desired to insert and release the negative and printing-paper, both of which have one of their edges inserted under the spring-clip. On the clip-hinge pin is mounted a flat metal spring carrier to which the pressure-board is attached, the front end of said camera being extended and formed as a spring-catch to catch on to the front edge of the frame. The carrier is divided and formed so as to bear on the centre and along the sides of the back board with equal pressure. The frame can also be used for transparent slates and for copying drawings.

5,756. 24*th March*, 1893.—"Photographic Dark Slides." A. H. Kirby, 20, Cornwall Terrace, Bradford, Yorkshire.

The object is to provide a means or stop for preventing the sliding shutters of dark slides from being pulled out too far when exposing a plate or film. Two L-shaped springs are cut out of sheet metal for each of the sliding shutters of the dark slide. These springs are countersunk into the substance forming the inner lower portion of the sliding shutters, one on either side of same, and such springs are made fast at their bases by means of screws, for instance, to the said sliding shutters, so as to slide up and down between the grooves in the framework of the dark slide. A small portion of the framework inside the top part of the grooves is cut away in such a manner that when sliding shutters are drawn out the full distance to effect the exposure, the L-shaped springs shall take into such cut away portions, and so prevent the shuttors from being further withdrawn, but yet allow of their being easily slid back after the exposure.

8,316. 3*rd May*, 1892.—"Plate Holder or Dark Slide." T. Scott, Victoria Crescent, Eccles, Lancashire.

According to this invention, the "rabbet" of the holder opposite to the shutter is formed on a hinged or flexible flap, so that when the shutter is withdrawn the said flap may be raised and the plate removed. When, however, the shutter is closed, the latter presses down the flap and retains the plate securely in position. When the plate-holder is in the camera, and the shutter is withdrawn, the said flap will bear against part of the body of the camera, and, being securely held thereby, the plate will be retained in register, and prevented from falling into the camera. A corresponding hinged flap may be formed immediately under the shutter at the end where the shutter is inserted or withdrawn, so as to simultaneously act as a "rabbet" for retaining the plate, and as an automatic "cut off" to exclude light when the shutter is entirely withdrawn. The invention is applicable to both single and double plate-holders. Springs may be provided to cause the flaps to be continually pressed upward.

Printed copies of the full specifications of above patents may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

REVIEWS.

DIE PHOTOKERAMIK. By Julius Kruger. (*Published by Hartleben, Vienna.*)

THE beautiful process by which photographs can be burnt in on porcelain, enamel, glass, metal, &c., is not practised by photographers as much as it might be; and although many of our leading professional workers undertake to produce pictures of this kind, it is an open secret that the actual operation is too often carried out abroad. There can be no question of permanence of results in the case of a picture of this kind, for it has literally been tried in the furnace. In the book before us, the various steps in this fascinating application of photography are plainly set forth, every detail of the work being fully explained. Directions are also given as to the employment of vitrifiable colours, and the different pigments suitable for enamel work. The book contains twenty illustrations of the appliances and tools necessary in ceramic photography.

THE BLUE BOOK OF AMATEUR PHOTOGRAPHERS, 1893. By Walter Sprange. (*Published by the Author at* 1, *Church Court, Clement's Lane, E.C.*

THIS book is a veritable Post Office directory for amateur photographers. It contains a ready reference guide to towns in which there are photographic societies, while the honorary secretaries of such societies have another ready reference index all to themselves; there is an index to photographic societies in British colonies, and in Japan, China, &c., and alphabetical lists of societies, with names and addresses of members, in the United Kingdom and Greater Britain. The book is a most welcome and useful one, and we trust that the author's labour and enterprise in producing it will meet with due reward.

PROCEEDINGS OF SOCIETIES.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

Ordinary Meeting, April 11*th.*—A paper on "The International Congresses of Paris, 1889, and Brussels, 1891," by Mr. LEON WARNERKE.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

March 30*th.*—Mr. J. S. TEAPE in the Chair.

QUESTION: In landscape photography, what is the best method of getting clouds on the same plate with the picture?

Mr. R. BECKETT said that Mr. Barker had recommended that as soon as the image becomes visible in development, the sky should be brushed over with a strong solution of bromide. Another method is to develop with but little pyro in the first instance, so as to get a thin image with detail all out, and then gain intensity afterwards.

The CHAIRMAN had used a similar method, but had diminished the quantity of bromide. With the brush method there is great liability to show marks at the edges.

Mr. A. HADDON inquired how it is that the sky does not gain intensity in the same proportion as the rest of the picture when the thin image is intensified.

Mr. W. E. DEBENHAM suggested that the explanation involved a contradiction of Messrs. Hurter and Driffield's proposition that the ratios of density with a given exposure could not be altered.

Mr. S. H. FRY then expounded the characteristics and merits of the Sandell or multiple-coated plate, and showed a set of photographs of large-size in illustration. These plates, he claimed, gave a longer range of gradation than could be obtained on a film of emulsion of one sensitiveness. Portraits might be taken in sunshine without that harshness and blackness in the shadows that generally supervened. In a group shown of cattle and drovers with the sun shining on them this would be easily noticed. As a preventive of halation, too, the multiple-coated plates were particularly effective. A picture of a conservatory with foliage against the light was instanced, amongst others, as proving this statement. Then again, as permitting of a very large variation in the exposure, the multiple film was quite alone. From a plate exposed sixty times the necessary time, a picture could be produced indistinguishable from one that had had the normal exposure. He would mention that fixing is slower than with an ordinary plate, and it was well to use a strong hypo bath, two or three parts only of water to one of hypo. With regard to an objection raised by Mr. Lyonel Clark, that from the nature of the film the gradation must be by steps, there was absolutely nothing in it.

Mr. DEBENHAM said that if the claims put forward for the multiple-coated plate were substantiated—and the examples shown certainly supported them—a great advance had been made. It had long been recognised that the weakness of photography was that want of gradation corresponding to the light received, except over a very limited range. In the cattle picture shown there was gradation in the parts on which sunshine fell, and a good gradation with plenty of detail in the shadows. Generally speaking in sunshine photographs the parts in shadow were dark and heavy, but here they came with more of the reality of a merely subdued tone, but still luminous. Then as to the advantage of freedom from halation, he thought all in that Society were agreed. The pictures shown were a good comment on a suggestion put forward for many years by writers of a certain class, that technical excellence was so easy as scarcely to be worth considering. One such writer even complains that photographers continue to waste their time and talent in trying to produce minute improvements in a process that is already too perfect, and requires little or no talent to work. The fact is, that technical excellence in photographs is by no means so common as is represented. From that one fault of halation alone many pictures suffer in all or nearly all exhibitions. He thought that to affect to despise scientific work was very much misplaced on the part of those who owed to such work all their ability to produce pictures.

Mr. SARGEANT had tried the Sandell plates, and obtained negatives leaving nothing to be desired.

Mr. T. BEDDING described negatives taken of the same subject, with exposures respectively of one-tenth of a second and fifteen seconds, and the results were equally good.

The CHAIRMAN showed some plates which had been experimentally exposed to test freedom from halation. On a Sandell plate an exposure of about ten times as much as on an ordinary plate was necessary to show the same amount of halation. An ordinary plate, however, backed with caramel, gum, and burnt sienna, was much more proof against halation than the unbacked Sandell, whilst the best backing that could be made would be still more free from halation.

Mr. R. BECKETT inquired which was the best backing.

The CHAIRMAN replied caramel, with a little gelatine, but it took some time in drying. There was, however, nothing to equal it.

Mr. FRY, in replying, thought that greater freedom from halation resulted when tentative developing was used. Hydroquinone and eikonogen were recommended rather than pyro for development, but the latter could be employed.

North Middlesex Photographic Society.

Ordinary Meeting at Jubilee House, Hornsey Road, on March 27th.

Mr. Cox produced a print toned with uranium which had become bronzed in the shadows, but he showed that this bronze could be removed by rubbing with a soft rubber eraser, and showed no tendency to return.

Mr. S. E. **Wall** then read his paper, entitled "Photography and Archæology." He fully explained the differences between the different styles of architecture, beginning with the Roman and following with the Saxon, Norman, Gothic, &c. He exhibited on the screen numerous slides of the most notable examples of the different styles, explaining their beauties and chief characteristics, beginning with the Roman baths at Bath, erected about A.D. 400, and following with Norwich, Hereford, Tewkesbury, Canterbury, Winchester, Salisbury, &c. He strongly recommended photographers to pay more attention to architecture, as being a subject abounding in interest.

The first outing of the season is on Easter Monday, when Penshurst is the chosen locality.

Newcastle-on-Tyne and Northern Counties Photographic Association.

Ordinary Monthly Meeting, April 11th.—Mr. **Wm. Parry** will read a paper on "Retouching."

The Photographic Society of Japan.

A special meeting of the above-mentioned Society was held on Friday, February 3rd, at the rooms of the Geographical Society (Chigakukiokai), Nishibonyacho, Kyobashi, Tokyo, at 4 p.m., the business being to consider the resignation of Mr. I. Isawa, the Japanese treasurer, and to consider the election of a new treasurer and additional members of Committee. Mr. W. K. **Burton** took the chair.

It was put from the chair, and carried unanimously :—(1) That Mr. Isawa's resignation be accepted. (2) That a cordial vote of thanks be accorded Mr. Isawa for his services as treasurer of the Society since a short time after its establishment. (3) That Mr. Kajima Seibei be elected Japanese treasurer, in place of Mr. Isawa. (4) That Mr. I. Isawa be elected a member of Committee. (5) That Mr. George Brinkworth be elected a member of Committee to represent the interests of Yokohama members.

An ordinary monthly meeting of the Society was held at the same place at 5 p.m., Mr. **Edmond R. Holmes** in the chair.

The following gentlemen were proposed, seconded, and unanimously elected members of the Society :—Messrs. A. Archer, S. Hoshino, Jiyodiya, Knemmel, G. Neubert, and H. Steele.

Messrs. **Kajima Seibei** and **K. Ogawa** showed a set of magnificent landscape photographs taken during and after the recent heavy fall of snow.

Various articles that had been sent by Messrs. **Marion** & Co., of London, were brought before the Society and explained. First there was a set of most beautiful figure subjects in collotype, from the studio of Messrs. Downey. Messrs. Hurter and Driffield's actinograph, the first that had been issued specially for the latitude of Japan, was shown and explained. The object of this instrument is, so far as possible, to reduce the question of the exposure of a negative to a certainty. The month, the day, the hour, the stop of the lens, the "actinograph number," and the nature of the weather, "very bright," "bright," "dull," &c., being given, and certain adjustments of the instruments being made, the exposure can be read off at once.

Messrs. Marion & Co. had also sent samples of their plates illustrating a new method of packing. The plates were coated twice the size needed, and each piece of glass was then cut from the back, the two plates thus produced being folded together in book-form, the uncut film acting as a hinge, so that there could be no motion between the surfaces. Nothing whatever was placed between the films. This method of packing ought to prove useful, as no substance had yet been found which does not affect the sensitive film if in contact with it for a sufficiently long time. All photographers know that particularly well in this country, where the climate of the summer months so rapidly accelerates the deterioration of plates.

Dallmeyer's new "Tele-Photographic" lens was then shown and explained by Mr. W. K. **Burton**. The lens consisted of a Dallmeyer patent portrait lens, with a back attachment in the form of a diverging lens of short focus. The lens gives an image many times larger than can be got by an ordinary lens with the same extension of the camera ; moreover, by making certain adjustments, the focal length of the combination can be changed at will, so that, within very wide limits, any size of image that was desired could be obtained. For example, a photograph of Ueno from Kaga Yashiki had been taken on a 12 × 10 plate with a single lens of 16 in. focus, and a photograph had been made with the new "Tele" lens, adjusted so as to have the same back focus. The photograph taken with the rapid symmetrical lens showed half of the racecourse with the hill behind, but the whole of the grand stand could not find room on the plate with the "Tele" lens. Mr. Burton had been successful from his very first experiment, but had to admit that he had found some difficulty in making the adjustment for correcting spherical aberration when the focus of the lens was changed. This difficulty he had no doubt, however, he could overcome. It was necessary to insure absolute steadiness of the camera, as the slightest motion resulted in lack of definition. The lens shown was mounted in aluminium and was extraordinarily light.

Negatives taken on the "Sandell" plate were shown, and an explanation of the plates was given. The plate was coated with several films of emulsion one over the other, Next the glass was a film of very slow emulsion ; on the surface one of the highest sensitiveness. It seemed impossible to get halation with this plate. The explanation of this lay in the fact that a very slow emulsion transmits red light only, so that no actinic light can reach the back of the glass to be reflected therefrom. Farther than this, if under-exposure were avoided, it was not of much consequence how long an exposure was given. If the upper film were ever so much over-exposed—even solarised—it was only necessary to continue development till an image was developed in the film below. The fog of the upper over-exposed film could be removed by a reducer.

The proceedings ended with a vote of thanks to the Chairman.

Ashton Photographic Society.

The annual meeting of this Society was held, on Thursday evening, at the Society's rooms, Henry Square. The President, Dr. **Hamilton**, occupied the chair.

Mr. G. H. **Dean**, honorary secretary, read the report. The library had been considerably augmented, through the gift of the late Mr. Basil Hall's collection, by his brother, Mr. T. B. Hall. The Council hoped, in the course of a few weeks, to have the books arranged, and ready for circulation among the members. During the season seven outings were arranged, but, owing to the inclemency of the weather, one was abandoned.

Mr. R. T. Marsland, the treasurer, presented the balance-sheet, showing the income to be £66 7s. 6d., of which £42 11s. 6d. had been received in subscriptions, £13 3s. 6d. from the sale of tickets, &c., and £9 7s. 6d. the balance brought forward from last year.

The Chairman, in moving the adoption of the secretary's and treasurer's reports, congratulated the Society upon its increased and increasing efficiency. As far as he had been able to judge, the work of the members, photographically, had advanced distinctly, not only in practical detail, but in true artistic feeling, without which no photographic society could ever make any real or distinct progress. They would notice from the secretary's report that they had an increase of twenty-nine members, making a total membership of 120, which was very gratifying. During the year, they had made an addition to the Society in securing the nucleus of a library, to which he hoped members would add suitable works. The summer outings on the whole had not perhaps been so successful as they might have been, but this was probably owing to the very inclement weather they had had. He asked them to remember that no photographic society could ever expect to succeed unless it recognised the fact that photography was not simply the faithful reproduction of scenes, but that there was such a thing as true artistic feeling in the composition of a picture. It was gratifying to him to know that in their Society there had been a distinct effort to realise this particular condition.

Major Bradley moved a vote of thanks to Dr. Hamilton for the service he had rendered and the great interest he had taken in the work of the Society.

Bath Photographic Society.

A lantern evening was given on Wednesday, the 22nd ult., at the Royal Institution, when Mr. Austin J. King, president, gave an illustrated lecture entitled "Some Memoirs of a Buried City" (Pompeii). The chair was occupied by Dr. G. Norman.

The Secretary announced that the lens to be used that evening for the projection of the lecturer's slides was of a new pattern, manufactured and forwarded for the occasion by Swift & Son, opticians, London.

Mr. King dealt not only with the existing buildings of Pompeii, of which many photographs were exhibited, but also with the numerous bronze articles of household and domestic use which have been found in the course of the excavations. With the aid of these and of plans of the Roman houses and villas he attempted to show what manner of men and women inhabited Pompeii, and how they lived their lives. The streets, the temples, the theatres, the amphitheatre, the palaces of the rich, the hovels of the poor, the baker's shop, the public bakery, the inn, the wine bar, the baths, were made to tell their story. Some pictures were from photographs by the lecturer, others from drawings of Gill's restoration, and others again were descriptive. The audience was a very appreciative one, and followed the lecturer closely through his account of what had been based upon what there still is. All agreed that not only is Pompeii just the place where good photographers would like to be sent to, but that without the aid of photography, the great treasure of this marvellous City of the Dead would be lost to nineteen-twentieths of those who now revel in the archæological and ethnological treat which the excavations have provided.

The Chairman very cordially thanked the lecturer. Mr King, he said, was always doing something for the Society, and this last entertainment had afforded them a better opportunity of studying the subject of the buried city than it had been his, the Chairman's, privilege to witness hitherto.

Mr. J. W. Britten and Mr. Clucas Gill have been elected members of the Society.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

H. J. P.—We should not care to fix more than one complete sheet in the quantity named.

P. de I. (Constantinople).—1. Thank you for pointing out the omission. The quantity should be 10 ounces of water, which can be diluted as stated. 2. We are unable to give the information, and have never yet met with films with a matt surface at the back. Probably those in question are made in America.

M. A. B.—The discovery referred to is merely of historical interest. It has never, so far as we know, had any commercial application.

Artist.—In an appendix to Chapter VII. of Modern Chromatics, by Rood, you will find a list of pigments which are not affected by the prolonged action of light, or by foul air, and another list of pigments which are doubtful in these respects, and the changes brought about in them by exposure.

Jenny K.—The flash-light mixture you refer to as having been ignited by the touch of a glass rod was most probably a mixture of potassic chlorate, loaf sugar, and magnesium. A drop of sulphuric acid (conveniently applied with a glass rod) will cause immediate combustion of the mixture.

I. C.—Naphtha will answer the purpose of turpentine in flatting a photographic background, and it is a little cheaper, but such a slight advantage is more than outweighed by its dangerously inflammable character and its pungent smell.

J. P.—We have never heard of the experiment being made, and cannot say whether the results would be as you anticipate. Why not investigate the matter for yourself?

Ferro.—The bluish colour is most probably due to insufficient washing after development. Unless the iron salt is thoroughly got rid of, the cyanide fixing bath will combine with it to form Prussian blue.

L. T.—Keep the bath up to the original strength by adding silver, and add a small quantity of alcohol to it—say one ounce to a pint of bath.

Memo.—It will be better to mix up a new toning bath than to risk loss by adding gold to an old one. This may be done, and often advantageously, with a bath of the old type, but in a combined fixing and toning bath the conditions are altogether different.

Mabel L.—Filtered rain water will do for the purpose, but distilled water is better.

Liverpool.—You will obtain any amount of density with pyro and sodic carbonate (washing soda). Put as much dry pyro as will cover a shilling in two ounces of water, and add as much of a saturated solution of the soda as may be required.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

LIBRARY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1806. APRIL 14, 1893.

NOTES.

THE South London Society may well be congratulated on their annual report, a summary of which appears in another column. They have had an exhibition, they have indulged in excursions, they have been busy in various ways with camera and lantern, they have bought apparatus, and added books to their library, and all on a five shillings' subscription. The management must be good indeed to secure such a result.

SIR JOHN GILBERT has intimated his intention of presenting to the Art Galleries of London, Liverpool, Manchester, and Birmingham, a number of his oil paintings and water colours which have been exhibited in past years at the Royal Academy and other exhibitions. Such a valuable gift will be welcomed by all lovers of art with whom Sir John Gilbert's pictures have been favourites for half a century.

IN a leading article upon this noble gift the *Daily Telegraph* regrets, with good reason, that the proposed donation does not include any of the earlier works of Sir John Gilbert, which, in the form of illustrations to books, were the delight of a past generation. It also rightly assumes that these have gone the way of other original works of the same class, which were drawn direct on the wood by the artist. Such works, alas! were cut up and destroyed by the engraver, whereas in these more advanced times the original is preserved, and it is only a photographic copy of it on the boxwood that is submitted to the engraving process.

THE proprietor of the "Star and Imperial Portrait Association," who was called upon last week, at Folkestone Police Court, to answer the charge of conspiring with others to defraud by means of the "free" portrait dodge, did not respond to the invitation, and inquiry elicited the circumstance that the man in question—Mr. George Gould, with too many aliases to quote at length—had been for some days absent from the neighbourhood. A warrant was thereupon issued for the absconder, and his bail, £400, was ordered to be estreated.

WE are requested by Messrs. Arthur Schwarz & Co. to note that Messrs. Sharp & Hitchmough, of Liverpool, and Messrs. Mawson & Swan, of Newcastle-on-Tyne, are agents in their respective districts for Dr. Andressen's developers and chemicals.

IT is only according to the fitness of things that what are called snap-shots should be helped out by cartridges. Messrs. Marion & Co. have recently brought out a pyro-soda cartridge, which is eminently adapted for pictures which have necessarily received the minimum time of exposure. We have tried them, and find them to be as energetic as their promoters promise. They are also issuing a most convenient fixing cartridge, which for the first time presents us with hypo in a convenient and innocuous form.

OTHER cartridges worthy of honourable mention are the "diamidophenol," manufactured by Arthur Schwarz & Co., and the tone-fixing cartridge by the same firm. This latter will be a welcome boon to all who are using gelatino-chloride papers.

SIR ROBERT BALL, writing in a contemporary last week under the heading, "The Month's Science," gives an account of Professor Boy's flying bullet photographs. Now these pictures formed the subject of a paper before the Photographic Society of Great Britain just one year ago, and some months before that they had been shown at the Royal Society. They are certainly rather ancient history to describe under "The Month's Science," which leads us to fear that Sir Robert is not quite so up to date with his photography as an astronomer should be.

The *English Illustrated Magazine* in the hands of its new publisher, Mr. Edward Arnold, has many excellent points, and gives abundant promise for the future. In the present number are some first-rate process blocks, including some from photographs of the Queen's Buckhounds, &c., by Messrs. Elliott & Fry. The magazine is full of good things and is beautifully printed.

The application of photography in the way of ornaments to watch dial plates is largely increasing in America. The well-known Waltham Dial Company is building a new factory of great size, and its top floor is to be fitted up to meet the requirement. *Apropos*, it is curious no one has thought of combining the special function of the locket with that of the watch. In days gone by, when ladies' watches were the exception and not the rule, the locket had a distinct use, but few ladies now wear a locket and a watch as well. The watch has the preference, and the locket has been put aside. But why should not the inner side of the watch be used for portrait purposes? There is no mechanical difficulty in the way, and in the keyless form of watch the portrait is not likely to be harmed by the frequent opening of the case for winding-up purposes.

An important communication has been made to the French Photographic Society by M. L. Labarre, a chemist attached to the Rouen Laboratory, relative to the use of hyposulphite of ammonia in place of the familiar hyposulphite of soda. M. Labarre claims for the new fixing agent that it is more easily eliminated from the print, that the bath keeps better and can be used again and again, filtration to get rid of any deposit being all that is necessary. The price is much higher than sodic-hypo. simply because it is not at present a commercial product. M. Labarre hopes in a little time to be able to indicate a method by which it may be prepared on a large scale. He observes that the crystals should be kept in yellow glass bottles hermetically sealed.

The second congress of L'Union Internationale de Photographie is to be held at Geneva, and will last from August 21st to August 26th. The proceedings will consist of the usual routine of the reading of papers and excursions, among the latter being a trip on the Lake Geneva, and the ascent of Mont Salère by the electric railway. The Geneva Photographic Society and the Swiss Photographic Society intend at the same time to hold an international exhibition of photographs. This will be open from the 1st to the 31st of August.

According to a German contemporary platinum mines have been worked in British Columbia for the last seventeen years, and that recently the output has been as much as 1,500 ozs. per annum, and that with the hydraulic appliances since introduced the output will further increase. This quantity is, however, very small compared with that produced from Russia. Russia can easily maintain its supremacy in the matter of output since the increased demand in 1891 was at once met by a yield of one-third more than the quantity mined in 1890. At the present moment monopoly governs the price, which is especially fixed in London, and there is no immediate prospect of this monopoly being disturbed by competition.

The application of the well-known "powder process" of Joubert, Obernetter, and Liesegang to lantern-slides, referred to by Mr. J. K. Tulloch, in his paper read at the last meeting of the Dundee and East of Scotland Photographic Association, reminds us of the daring attempt in 1889, on the part of some City speculators, to foist this process on an ignorant public as a "new patent." A number of newspaper representatives—those belonging to the photographic press being strangely enough omitted—was invited to a demonstration of the "patent." The operator boldly declared that the process was not a photographic one, because neither gelatine nor nitrate of silver was used, and at the luxurious luncheon which followed all kinds of congratulatory speeches were made as to the value of the discovery (?) both from a scientific and commercial point of view. When in the Photographic News the following week it was shown that the "patent" was nothing more or less than the old powder process, the bubble was at once burst, and from that day to this nothing more has been heard of the invention or of the company which was to float it. One wonders who paid for all the good things which were consumed at the enjoyable but abortive luncheon.

The action of light on chemical combinations is probably far more extensive than is generally suspected. The latest additions to the list of sensitive substances are the salts of Cerium. MM. Auguste and Louis Lumière, in a communication to the Paris Academy of Science, say that while the Cerous salts are stable, the Ceric salts are just the reverse. Paper sensitised with these salts, and exposed to light, becomes discoloured, and when treated with carbon an insoluble colouring is formed. Future experiments will determine the value of this discovery to photography. At present only the fact of the sensitiveness is positively known.

CRYSTAL PALACE EXHIBITION.

"OH, what a falling off is here!" is the exclamation which naturally occurs to anyone visiting the Crystal Palace to-day who has seen previous photographic exhibitions in the same building Instead of the naves being crowded with deftly arranged kiosks and loaded with apparatus as on former occasions, there are only five stations of the kind, the first being devoted to Messrs. Beck's "Frena camera"; the second to Messrs. Theobald, the ingenious purveyors of electrical and photographic toys; the third to Messrs. Noakes, of lantern renown; the fourth to Messrs. Couch (frame makers); while the fifth is shared by Messrs. England, Messrs. Platt & Witte, and the Cresco-Fylma Company. These exhibits take up a small portion of the South Nave, while in the North are the alcoves and screens devoted to the pictures, which also are far less in number than in former years. We regret that the exhibition has not been better supported, for we know full well that the preliminary work of such a show is enormous; and that it must be a great disappointment to the executive to have laboured for such a meagre result.

Messrs. Beck exhibit their "Frena camera," and they are also well advised in showing what the instrument will do. In a number of frames they exhibit an original three-inch square picture taken in the camera, and by its side an enlargement of the same picture. These pictures are capital, and the enlargements reflect great credit upon the skill of Mr. F. A. Bridge, who is, we learn, responsible for this portion of the work. One picture in particular is worthy of attention, we refer to that of a Highland bull, which would delight the heart of Mr. Peter Graham. The enlargement in this case is 144 times the size of the original hung by its side. Messrs. Theobald & Co. appeal more to the rising generation, and show a vast number of photographic nick-nacks which will prove of great attraction to the youth of both sexes. Messrs. Noakes show, as they did on a former occasion, a number of lanterns and everything pertaining to them, from lime jets to slides. They have also a lathe in action to prove that they are manufacturers and not merely dealers. Mr. England, of Notting Hill, exhibits some of his capital film pictures, together with enlargements taken from them, which are full of exquisite detail. Among them we recognise many of his beautiful Swiss scenes which we have previously had occasion to mention favourably. The Cresco-Fylma process of enlarging has now taken a firm hold on the attention of photographers as a most convenient method of stretching a small picture into a large one, and here are several good examples of its work. We have recently experimented with this magical solution, and find it of great service both for its chief purpose, that of enlarging, and also for stripping a film and reversing it for process work. It is certain in its action, and very simple and easy in manipulation. Messrs. Platt & Witte exhibit a biunial lantern, together with brass work for cameras, &c. Here our account of the apparatus section of the exhibition must perforce come to an end, for there is no more to write about, unless we mention that it is understood that Messrs. Perken, Son, & Rayment have arranged to exhibit the prize pictures pertaining to their recent competition. But at the time of our visit these had not yet arrived.

With regard to the pictures, we first come to the alcove devoted to the works of Mr. Warneuke, of Glasgow, which are mostly large-sized or life-sized portraits, marked as "direct" portraits. Nos. 9 and 12, "Ethel" and "Desdemona"—the one a pretty child, the other a woman; this latter, our readers may remember, was reproduced in this journal some months ago—both very excellent, as is No. 10, a portrait of Miss Laura Johnson. Close by is the stall of Mr. Goodwin and also that of Messrs. Perken, Son, & Rayment, of Hatton Garden, who hoped to be shipshape by Tuesday, and where we saw a very good enlargement of one of their own negatives of three very handsome girls very well arranged. Near this is to be found Mr. Trehle, who shows a very good selection, an enlargement of a negative of his own, a portrait of John Burns, which is as good as, or better we may say, than anything in its own line in the show. A quaintly conceived and well carried out picture, entitled "A Wretched Criminal"—a little tot of a girl—will certainly find admirers, as it has already found a purchaser, having been bought by our contemporary *Black and White* for reproduction. Another charming child picture, "Contentment," depicts a real "duck" of a baby with a bottle, and who looks perfectly satisfied that no "Veto" Bills will interfere with her comfort. Mr. Treble is also showing a number of pictures taken by his new incandescent gas-lamp arrangement, particulars of which will be found on another page. H. Hallier, Sydenham, Nos. 20-60, has an alcove with a general assortment, all displaying good work, notably No. 43, a case of pictures of children and dogs. Nos. 61-79, enlargements by Morgan & Kidd, the most important being one representing a scene from "Hypatia." It is an ambitious attempt, but shows great want of initial care; it is singularly ill-composed, the woman being almost exactly under another figure, a statue, and the edge of Issachar's cloak is exactly following out a distinct line in the background. The negative is marked as being by A. Ellis. No. 67, an enlargement from a negative by Van der Weyde, of Miss Mary Anderson, is very good, and so is No. 69, in which the white dress, satin presumably, is very satisfactory.

We must now take the pictures as we can get them, without regard to their numerical order, for catalogue as yet there is none. Hackney Photographic Society shows Nos. 171-215, though why they should have skyed Captain Abney's effigy we don't know. S. J. Beckett has several exhibits, of which we prefer No. 173, "The Old Village, Shanklin." In the same alcove are two little real gems reminding us of the painter Stothard—Nos. 100 and 192, by Mr. George Hawkins. Go on Mr. Hawkins, please; there is an opening for people who can show such taste and delicacy and workmanship. No. 158 (no name), a very nice set of picturesque old house ends, very artistically obtained; after that we find Messrs. Robinson & Sons exhibiting some large portraits, though the pronounced purple of some do not give entire pleasure.

Nos. 292-359, West London Society. No. 307, by W. S. Rogers, a small, long pastoral scene: a very charming piece of decorative work (proper decorative work, not Dr. E.'s). The picture is called "Beneath the Elms." No. 330, "Evening Calm," by Leslie Selby, another poetic piece of work though without the artistic grasp shown in the previously noticed picture; but a picture with the quality shown by Mr. Rogers takes a little doing. No. 335, "Primrose Gatherers," by W. J. Coll, gives evidence of nice care in arranging the children and in choice of background. Nos. 401-412, J. E. Gould exhibits several good ship studies, one being particularly interesting, as showing a torpedo in the act of being discharged.

East London Photographic Society, Nos. 413-425. K. Greger, No. 426, has some very charming little pictures with sheep. No. 419, "A Fishing Station" (no name), labelled as having taken a first prize, and we quite agree with the judge's dictum. Another screen, and we find Mr. L. Cult with four exhibits, all very excellent. We don't know which to admire the most—"Chapwick Church, on the Stour" (430) or "Charlton Church" (No. 428). "White Mill, on the Stour," is another good study, but No. 429 took our fancy perhaps more than the others. F. T. Palmer, on screen No. 432-450, very pleasant portraits, mostly children, which latter are the best. The Hove Camera Club has a good show. Mrs. F. Holmes exhibits examples of "Statuesque Photography," some of which are very funny. We thank you, Mrs. Holmes, for giving us, as near as possible, a laugh. Your hydrocephalous gentleman, standing upon a pedestal, like a letter weight, and arrayed only in the simple innocence of a small moustache and a large tablecloth—well—many thanks—we will say no more. "Down the Thames," by A. H. Webling, a boat being towed by a steamer. The steamer is not visible, all you see is a piece of the tow rope. It is a beautiful piece of photography, the go of the water in the wake of the vessel, in which the small boat stands out strongly, being excellently rendered. "Six hand camera shots," by Charles Job, and a set of six small pictures beneath it are very good, the latter giving the impression that they would enlarge satisfactorily. Miss Maggie Hine—if we have mis-spelt your name forgive us, it is rather badly displayed in our notes—your little group of three children is very pretty and shows an artistic taste. Don't you know, Miss H., that we all do best what we love best, so stick to the babies and leave those curious idealisms—or shall we say realisms? *very* realisms—which you distinguish by the names of the Seasons, severely alone. Upon a screen, in close proximity to the group just mentioned, hangs a picture called "Repose," a young lady lying upon a sofa, partly covered with a sheet; her attitude is certainly odd. She is most distressingly undressed, and with all that she appears to be as entirely devoid of "figure": it is not the lady's fault, but the photographer's, who has fixed her up in this unnatural, ill-conceived, badly composed, and certainly not too delicate posture. Nos. 602-612, by R. Slingsby, are beautiful specimens of flash-light work, and Nos. 609 and 610 are beyond praise as pictures. We went back to have a final look at them as a treat before leaving, and we shall look forward to seeing some more of the same sort from the same hand. No. 481, four studies of sea by A. R. Dresser, are marvellous, one of which, "Corbiere Rocks," is exhibited in another part of the exhibition in an enlarged form, by which, if anything, it gains. We also noticed an exhibit of Brun's pigments for colouring photographs—they were shown on photographs, but more for the purpose of attesting their brilliancy than for artistic purposes.

This account must necessarily be somewhat disjointed for the reasons given above, and may also be in some particulars inaccurate, which though it be not our fault is our misfortune. The principal thing that struck us was the marked superiority of the amateur work over that of the professional. We know quite well that the professional man has to work at a business, and the amateur at a pleasure; and the former has not the time to spare or the opportunity in the ordinary way of business of making artistic pictures, but when he sends to an exhibition he should take care to send specimens of better work, even if he had to do them for "love," in order to keep pace with other men. With the exception of the photographs noted, most of the professional work is very indifferent; touched, very palpably touched proofs, and worked on photographs that in their original state might have had some charm, but which charm was all lost and hidden under the indifferent and inartistic superstructure. As we have pointed out before in this paper, there are so many amateur photographers now doing good and artistic work, that they must perforce educate their friends to a better taste and feeling, and if the professional man does not keep up to the standard these people look to—well, the public, in the end, will be obliged to take their own portraits and views themselves.

Just as we go to press, looking over our notes, we find we have omitted one particular picture. We are very glad to be able at the last moment to remedy the omission. No. 334, "The first touch of Winter" (and very appropriately) by Charles Winter. It is a charming picture, of course it is full of snow, and it is full of atmosphere, and the technical work is very good, but it is the artistic feeling of the picture that attracts one. We know that a poet, a real, proper, respectable poet, can make you a poem out of a brickbat, or a primrose, or a penwiper, but it is not given to every one, unless he be a real, proper, respectable artist, to make you a picture out of a bush, a stump, some snow, and a distant tree; however, that is what Mr. Winter has done, and all honour to him. We must also say a good word for six very tasty little landscapes by W. Thomas, as well as some very pretty carbon prints of children by A. H. Gray.

◆

AN interesting object for exhibition at the World's Fair at Chicago (says the Central News) has just been dispatched to America. It is the first sun picture of the human countenance ever taken, and it has been lent by Sir William Herschel to the University of the City of New York, and will form a part of their exhibit. This portrait of his sister was taken by Professor Draper, of the New York University, on the roof of one of its buildings, and early in 1840 was sent as a present from that gentleman to the late Sir John Herschel.

PHOTOGRAPHY BY GASLIGHT.

PHOTOGRAPHY by gaslight has hitherto attracted but little attention, for the light given by it is deficient in those actinic qualities which are of photographic service; and portraiture, with such a means of illumination, would, under ordinary conditions, be regarded as an impossibility. Most photographers have had occasion to try gaslight for copying purposes, and even here the necessary exposure is so long that no one would attempt such work unless no other luminant were available. Photography has been tried with the huge compound burner known as the Wigham light, which now serves so many of our minor lighthouses, and nightly dispenses its rays from the summit of Westminster clock-tower; but we have occasionally heard of other suggested arrangements, by which gaslight might be made available in the studio, but all these attempts must be looked upon as experimental. The gradual incoming of electricity, and, in a minor degree, the re-introduction of flash-light compounds, have thrown into the background any attempts to use gaslight for photography. The introduction of isochromatic plates and films has of course rendered possible what was quite impossible before their advent, and with their help many stage scenes—lighted by gas only—have been secured in the camera, with the comparatively short exposure of thirty seconds with a portrait lens. But this, again, is but of experimental interest.

What bids fair to be a most important new departure in photography, and one which will be especially welcome to those who live in towns where light is, on account of surrounding conditions, seldom at its best, is exemplified in the studio of Mr. C. F. Treble, at Queen's Parade, close to Clapham Junction. This gentleman has set up an entire system for portraiture by artificial light, that light being due to no startling chemical innovation, but to the familiar household gas which is laid on from the gas works. But instead of being exhibited in the ordinary batswing, fishtail, or Argand burners, his gas is fed into the modified Wellsbach incandescent burner, which is now seen at all the Aërated Bread depôts and many other buildings in London.

This form of lamp has already been described in our columns; but as it now appears in a new *rôle*, we devote a few words to it. The present form of the lamp, with reflector attached for portraiture, is shown at Fig. 1.

PATENT OFFICE LIBRARY

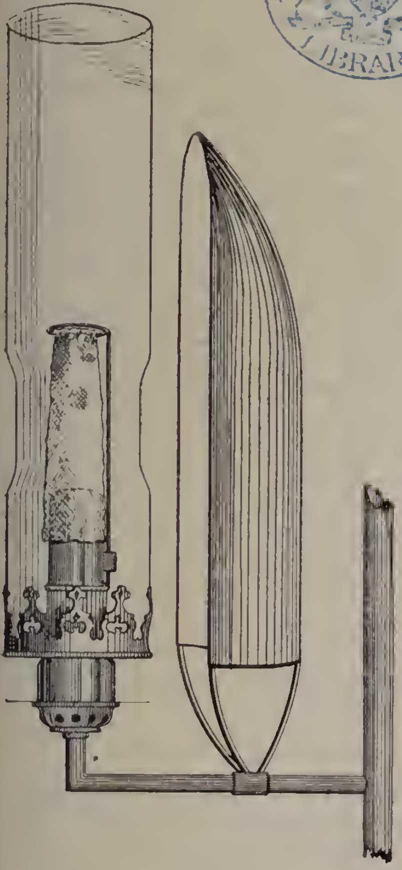

Fig. 1.

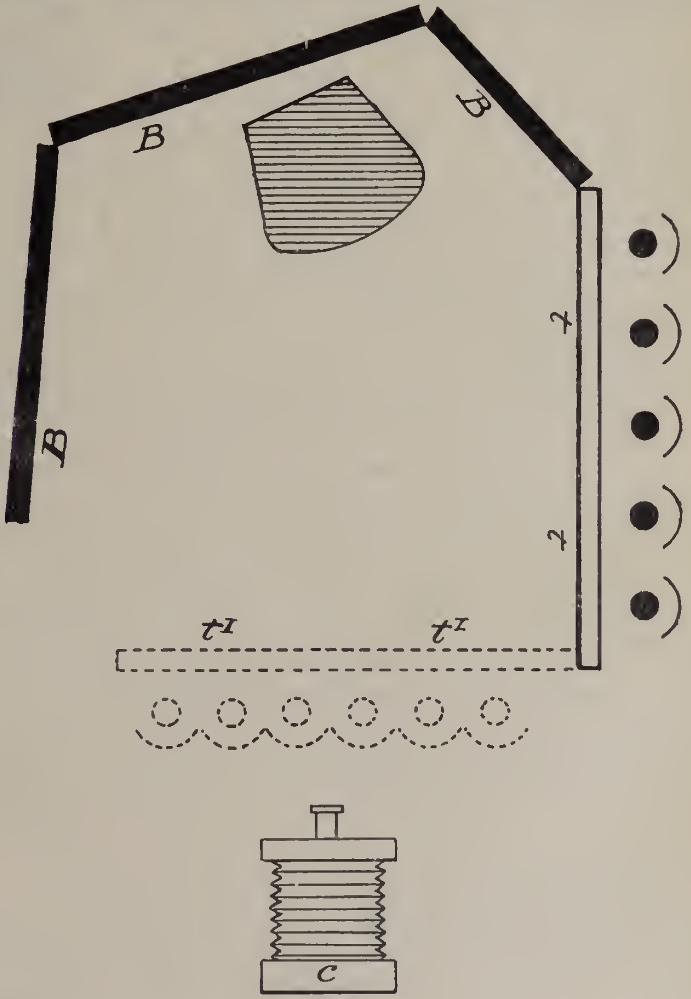

Fig. 2.

It consists practically of a Bunsen burner, in the blue flame of which is suspended on a wire support a mantle of incombustible earthy matter, which is speedily brought to a white heat. The light given by this burner reminds one of the limelight, both as to its colour and intensity; but it must be remembered that it requires for its service only the usual household gas, and needs no oxygen for its support beyond that which reaches it naturally from the surrounding atmosphere. It is not expensive to maintain, for the burners require so much less gas than the ordinary batswings that 2½d. per hour will cover the cost of seventeen lamps. The curved tin reflector which is associated with the burner for its new duty helps to concentrate the light upon the sitter and his immediate surroundings.

In employing any kind of artificial light for photographic portraiture one of the first essentials is that its rays shall be diffused so that it shall approach the condition of daylight as nearly as possible. In the best systems of flashlight photography the lamps, many in number, are placed behind a translucent screen. Mr. Treble has arranged his lamps in a similar manner, their light being modified and diffused by means of screens constructed of oiled tissue paper. Reference to the annexed ground-plan of his arrangement will make explanation easier.

The apparatus consists of a folding framed background, 7 feet in height, BBB, which encloses a space for the sitter, whose position is marked in the illustration. This space is bounded on the right by a translucent screen, behind which are eleven lamps arranged in three tiers, and which stand upon the necessary iron piping which feeds them with gas. Above the opening to the chamber thus formed there is another narrow screen of oiled paper, behind which is placed a horizontal pipe, bearing six more lamps, so that these latter are quite overhead, and cannot interfere in any way with the position of the camera, C. The entire number of incandescent lamps is, therefore, seventeen, but there is no actual necessity for this exact number, nor for a rigid following of the arrangement described, save that in the case of the tiers of lamps one burner should not be exactly in the same vertical line with one below it, or its flame will be rendered unsteady from the motion of the heated air from the lower lamp. With the arrangement described Mr. Treble can easily secure a portrait in five seconds, and from specimens shown to us we can say that they are in no way inferior to those obtained in daylight.

It will at once be conceded that a method of lighting which imitates daylight so perfectly is highly desirable in many ways. The sitter is neither dazzled nor startled by anything extraordinary, nor are there any pungent vapours or bad smells to contend with as a necessary condition of getting the light. In the dull days of winter, when daylight is no good for photography after two p.m., such an apparatus will enable a man to set the sun at defiance and to keep his studio open as long or possibly longer than he would in summer; for in summer time there are hosts of counter-attractions which keep probable customers aloof from the photographer's door. It is certain that Mr. Treble's system will meet with wide recognition, and will be especially valued by those who, longing for the electric light, have felt themselves unable as yet to indulge in such an expensive luxury.

ECLIPSE PHOTOGRAPHY.

BY A. TAYLOR.

PHOTOGRAPHING the corona during an eclipse of the sun is not such a simple operation as one might at first imagine. We may recognise in the corona at least four main portions, differing in intensity of light—the chromosphere and prominences; the brilliant inner corona with the polar rays; the middle corona, which we may take as extending from 10′ to 30′ from the limb; and the faint extensions which have been traced visually for several degrees from the limb, and which are only very slightly brighter than the surrounding sky.

It is obviously impossible to photograph all these in a satisfactory manner with one exposure. Different exposures must be given to get the different portions of the corona, and a uniform scale on the margins of the plates will enable the relative intensities of the photographic effect to be measured.

M. de la Baume Pluvinel, in a very interesting and valuable paper in Vol. 6, No. 9, of the records of the Société Astronomique de France, gives a useful discussion of this question: "The intensity of photographic action is equal to the product of three factors: the effectiveness of the object-glass, the duration of exposure, and the sensitiveness of the plate. If we indicate the useful diameter of the object-glass by a and the focus by f, the effectiveness defined by the International Congress of Photography is $100\frac{a^2}{f^2}$. On the other hand, if we take plates of gelatino-bromide of silver of normal sensitiveness as our unit, and let t be the length of exposure in seconds, we shall have the following formula to express the photographic action:—

$$100\frac{a^2}{f^2}t.$$

"Working with plates of wet collodion, this expression must be multiplied by $\frac{1}{30}$, and with plates of dry collodion by $\frac{1}{300}$. The first photographs of the corona taken with wet collodion from 1868 to 1878 were obtained with a photographic action not greater than 2. Later, thanks to rapid processes, we could obtain plates much more impressed. Thus, in 1883, a photograph obtained by M. Janssen had received a photographic action equal to 918. On the negative thus obtained the corona extended to between 30′ and 40′ from the limb of the moon, but details of the parts near the sun were completely wanting. We might ask whether by still further increasing the photographic action we should also extend the limits of the phenomena. Certainly not; for, if the photographic action is too intense, the faint contrast between the extreme parts of the corona and the sky, which is always more or less illuminated, is no longer appreciable on the negative. We know, indeed, that if we wish to produce a maximum contrast between two half-tones, we must only use just enough light for the faintest of the half-tones to give a perceptible image. In America, Mr. Burnham has been engaged in determining the maximum length of exposure to give plates to obtain the best representation of the corona, and has made experiments on the subject by photographing the moon and white clouds on a faintly illuminated sky."

We can scarcely accept this latter as a correct description of Mr. Burnham's experiments. He photographed the moon in full daylight, and photographed brightly illuminated clouds round the sun; the conditions in these cases being totally different from those of an eclipse. His experiments prove, what has never been disputed, that to get slight contrasts with great intensity of light, a long exposure is useless; but the problem with the faint extensions of the corona is to get slight contrast with faint light. My own experiments with the 20-inch mirrors of 45-inch focus at Ealing, when I photographed the moon surrounded by clouds in faint twilight, were more comparable with the eclipse conditions; and I found that increase of exposure up to a minute gave greater extension, a result which the Eclipse Committee of the Royal Astronomical Society believed would be obtained by the long exposures with mirrors in eclipse work. One second exposure with the 20-inch mirrors will give a photographic action of 19·75 according to the formula; and 60 seconds exposure gives an action of 1185, but these results must be reduced, probably by 10 per cent., owing to loss of light by reflection.

M. de la Baume Pluvinel continues:—"At Salut Isles, in 1889, I used five arrangements, giving photographic actions varying from 185 to 13. However, doubtless on account of the peculiarly intense illumination of the atmosphere due to the short duration of totality and a great abundance of water-vapour, the negative corresponding to a photographic action of 30 was most satisfactory. But it is very probable that an equally good result might have been obtained with much less photographic action. Thus, Mr. Barnard, to whom we owe the best photograph of the eclipse of January 1st, 1889, worked with a photographic action equal to 0·58."

It would be interesting to know why, if this is the case, the photographic action 30 was better than 13 with M. de la Baume Pluvinel, and why instantaneous pictures of the corona do not show greater extension than any others. At Salut Isles, Mr. Rooney exposed plates to photographic actions of 1·11, 2·22, 4·44, 44·44, 88·88, and 177·77, and his negatives show an increase of extension of the corona with every increase of photographic action. Father Perry, with the 20-inch mirror, obtained plates with photographic actions of 19·75, 98·75, 197·5, 395·0, and 790·0, always obtaining greater extension with greater photographic action. His photograph of 197·5 is not quite equal to Mr. Rooney's 177·76 plate, but the other two plates of Father Perry's series, with greater photographic action, show still greater extension. Comparisons of Mr. Rooney's photographs, and those obtained by Father Perry, by the use of the formula given by M. Pluvinel, strengthen the opinion that the mirror was very probably dewed, but they clearly indicate that so far all the evidence is decidedly in favour of the idea that the greater photographic action gives the greater extension of the external parts of the corona.

Captain Abney finds that we may look upon a photograph as a drawing in which 200 different shades are used; or, in other words, that on a correctly exposed negative differences of ½ per cent. in the intensity of light can be detected. It should therefore be possible by correct exposure to detect the corona on the sky when the sky light forms 99½ per cent. of the light and the corona ½ per cent. The correct exposure to detect this slight shade with faint light is totally different from that necessary to detect it with intense light. A certain absolute amount of light is necessary to begin *any* chemical change in a sensitive film, and in photographing extensions of the corona this limit must be reached, and can only be reached by long exposure. In Mr. Burnham's experiments on photographing clouds round the sun, the difficulty was not to get enough light *to start* photographic action, but to *cut down* the light so as to detect ½ per cent. of the total amount. Hence his experiments do not in any way bear upon the question of photographing the extensions of the corona.

The whole process of photographing the faint extensions of the corona is more fairly comparable with that of photographing nebulæ on a moonlight night, and it can scarcely be questioned that a long exposure and great photographic action in this latter case give the best results.

The most enthusiastic advocate of short exposure and small photographic action in the case of the corona would scarcely prefer three minutes to sixty minutes when photographing nebulæ on a moonlight night; and, as the conditions are fairly comparable, it is difficult to understand why three seconds and small photographic action should be suggested for the corona extensions instead of sixty seconds and great photographic action. Of course short exposures are necessary to obtain the internal portions of the corona, but for the faint outlying portions only long exposures can reasonably be expected to give satisfactory results.—*The Observatory.*

* * *

Photography, in many of its aspects a luxury, is one of the industries which first feels the effect of depression in trade. The 2½ per cent. dividend, which is all the Stereoscopic Company could declare at the annual meeting held last week, only reflects the diminished profits which have been experienced by nearly every photographer throughout the year. Mr. Howard J. Kennard, the chairman of the company, said he could not hold out much prospect of better things in the future, and went so far as to express an opinion that if the Home Rule Bill passed, it was unnecessary to say that not only would there be no profits, but a large loss. Mr. Kennard did not explain the connection between Home Rule and photography, which is rather a pity.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, APRIL 14, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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"OLD CLO'."

WE see by a contemporary that Mr. Appleton, an engraver, has just reproduced one of Gainsborough's finest pictures, under somewhat novel and, to photographers, decidedly interesting circumstances. The picture—named "The Sisters"—belonged to Baron Ferdinand de Rothschild, who, we are told, paid some ten thousand pounds for it, and, in the fire at Waddesdon Manor, a few years ago, it was unfortunately destroyed, and all record of it would have been lost but for the fact that Mr. John Fergus had secured a plate from it, and this has been used by the engraver from which to make his mezzotint, which, by all accounts, is highly satisfactory. That is the story; now for the moral, which all good and true stories have, or should have. Some little while ago, in conversation with Mr. Louis Fagan, the—until just recently—Deputy-Keeper of the Prints and Drawings in the British Museum, he expressed himself as anxious that amateur photographers, when out and about, visiting old country houses and other places, where often may be found objects of interest—old portraits, old dresses, &c.—would photograph them and send a copy to the Museum, which, he undertook to say (semi-officially), would be glad to receive and acknowledge to the sender all such prints. He was just on the point of starting for abroad, and was pressed for time, so asked us to write a letter on the subject, he, at the same time, giving us authority to use his name as a late head of department in the Museum, and one who consequently knew its wants. The photos that Mr. Fagan said were most wanted were copies of old pictures or portraits containing details of early costume, and even to as late as twenty or thirty years ago, for in a very short time the articles of attire of that date will be matters of history, and as unknown, and information about them as much sought after, by artists and others, as the costumes of the beginning of this and the later part of the last century. Particulars of the details of uniforms in the first Napoleon's time, for example, are very difficult to get, and proportionately valued. In many old country houses there are to be found carefully preserved coats and uniforms of ancestors—and hats and boots, even—the record of which gets more and more valuable on account of the results of natural decay. We have heard of some little village in a remote part of Buckinghamshire where, once a year, at some festival or another—we don't know whether Christmas or harvest time—the school children are dressed up in some old costumes for the day, these clothes being kept locked up in a box in the church, and lent out for the occasion. We don't know the date of the garments, and, unfortunately, have also forgotten the name of the village, but they, the garments, are, we believe, very old and quaint, and it, the village, is ever so many miles away from anywhere; but still some wandering snap-shooter might chance upon it some day, in which case he will know what to do. Another thing to be mentioned. We are not aware if anyone has ever seen a pillion—the double saddle for a man and a woman. We don't know if one exists, but there might be found, somewhere in the lumber room of an old house, enough of one left in good condition to enable a photograph to be taken, which should prove interesting. There is no absolute record of one to be found anywhere that we know of, all the information that can be obtained being from old engravings, and they are somewhat vague; so a photograph in one or two positions from the real article would be really valuable. With regard to the costumes, it is easy enough to get a portrait of an old coat or hat by getting a friend to put it on, or by hanging it on a clothes-horse. A back view as well as a front one would be necessary, and in some cases a separate picture of a sleeve, or a collar, too, if, for example, there were any interesting points such as embroidery, or peculiar buttons and buttonholes, or odd string ties; and the photographer must bear in mind that *detail* is what is most earnestly to be looked for and captured. No necessity for making a picture, a hard and fast and sharp snap being the desideratum. And yet another thing. There are many old people to be found, in out-of-the-way country places, who preserve and only wear on state occasions their father's coat or their mother's gown, for instance, or who always get their clothes made in the fashion they have been accustomed to for many years. "My father was married in it," you may hear an old fellow say, in respect of some strange and marvellous coat or flowered waistcoat. "Yes, my father was married in it the same year as old 'Boney' got beat at Waterloo: and if it was good enough for him, it's good enough for me, surely." We, strange to say, had the privilege of knowing our great-grandmother, and have often heard her describe the triumphant march to Tyburn of the notorious highwayman, Jack Rann, or "Sixteen String Jack," as he was called, from the fact of his wearing four ties to each knee of his breeches instead of two, and how the ladies stood at the windows in what is now Oxford Street and waved their handkerchiefs to Jack, who stood up in the cart, bowing to them, he wearing his full quantity of strings as well as a large bouquet in his button-hole. That, you see, is a sort of word photograph, and it is of interest because it is a fact, and not history, which is sometimes wrong. In connection with the photographs, it would be necessary to send with the print all particulars as to date of object photographed as nearly as could be correctly determined, also colour and texture, and when and where the picture was taken. Of course, there are many other things discoverable that are of interest to the artist or the antiquarian, such as metal-work, and cabinets, and furniture, particularly when *dated*, but literal reproductions of costumes is the most important. We would therefore recommend our friends, when out on the war-path with the recording camera, to think of posterity and its as yet unspoken gratitude, and to keep a spare eye open for "Old Clo'."

* * *

The Russian Government looks upon the university student as a firebrand of revolution. In the Russianising of Finland institutions it is interesting to note the precautions taken with regard to the University of Dorpat. Every student entering the University will in future be required to furnish with his papers three photographic portraits, each bearing his signature. When this is taken in conjunction with the enactment forbidding the students assembling for the discussion of any question and making speeches in public, it is clear that use of these portraits will be made by the police, should occasion arise, for purposes of identification.

CAMERA CLUB CONFERENCE, 1893.

The Conference opened at the Theatre of the Society of Arts, on Wednesday last, with a very short address from the President, Captain Abney, who, we regret to say, is suffering from an accident to his leg, and on that account will probably not be able to preside uninterruptedly throughout the two days' proceedings.

He said that the Camera Club Conference had now established itself as an annual event, and from a glance at the programme he anticipated that the present one would bear fruit with regard to photographic progress, if not in regard to art. It was clear that many of the subjects would promote discussion, and he trusted that those who had anything to say would not hold back, but would give the Conference the benefit of their observations. He did not intend to trouble them on this occasion with a formal presidential address, but would reserve what he had to say for the paper which was set down in the programme against his name. He then called upon Mr. William Taylor (of Leicester) to read his paper on "The Establishing of Standards."

Mr. Taylor began by referring to the various attempts which had been made in recent times to secure a common agreement in certain standards which affected photographic work and instruments, and he asserted that the purpose of a standard was to secure the attainment of simplicity, and the conveniences belonging to simplicity and uniformity of practice. First, when seeking to formulate any standard, we must ask the question, Is it necessary? For instance, it is proposed, as one of our English standards, that the equivalent focus of every lens should be engraved upon its mount. Of a similar character is the recommendation that the focus of every lens should be determined accurately within 1 per cent., and that the flange-screw should be upon the mount, and not upon the tube of the mount. The next question which arises is, "How can the standard, when formulated, be effectively established?" At our International Congresses it has been proposed to alter our plate sizes, and measure by the centimetre instead of by the inch. It would be a serious question for a manufacturer to abandon existing standards, nor would photographers generally care to give up those to which they were accustomed. Certain standards there are which might be adopted without inconvenience and without delay, and, as an example, he mentioned the desirability of standard fittings for compressed gas bottles, &c.

The paper led to a short discussion, in which Messrs. Trail Taylor, Warnerke, and Sturmey took part. Captain Abney, in summing up the matter, said that he thought no definite scheme could be arrived at until photographers had a trade union which could dictate to its members, and say what should and what should not be done. Personally he hated the metrical system, but could not pass over the labours of Continental workers without acknowledgment. He believed that the establishment of universal standards would be a boon, and will be adopted when public opinion is sufficiently educated to appreciate them.

The next paper on the programme was by Mr. Dallmeyer, on "Lens Systems." In the opening of his paper, Mr. Dallmeyer referred to the valuable article upon the measuring of lenses which had been read before the Society of Arts, in November, 1891, in which the known methods of focometry were classified under different heads, including in all some twenty different processes. He then proceeded to deal with the question of focometry when applied to lens systems in which the Gauss points are considerably removed from the elements of which they are composed, illustrating his remarks by reference to various diagrams and formulæ, and concluding with a very beautiful lantern illustration.

A short discussion followed, in which it was generally agreed that this paper was of too intricate a nature to be discussed offhand. Mr. Elder said that he felt glad that Mr. Dallmeyer had once more put these Gauss points in evidence, for the subject had been very much neglected of recent years. Captain Abney agreed with what had fallen from Mr. Elder, and said that the paper, although full of formulæ, might be regarded as a valuable practical demonstration.

Mr. Chapman Jones followed with a paper "On Certainty in Photography," in which he challenged the conclusions of Professor Armstrong. The paper dealt with prolonged exposure and development, with the skilful compounding of the developer employed, with the use of sulphites, and, lastly, with the question of intensification. This paper was in progress when we went to press.

THE KODAK WORKS.

NEAR to Harrow Station, on the London and North-Western Railway, there has been erected, within the last two years, a mighty palace in honour of King Kodak and his ministers, who otherwise call themselves the "Eastman Photographic Materials Company." We lately wended our way to one of the doors of this noble building, "pressed the button," and politely requested the company to "do the rest"—the rest in this case being no rest at all, for it involved a perambulation through endless corridors, vestibules, work-rooms, emulsifying chambers, coating rooms, cooking rooms, heating rooms, cooling rooms, and every other kind of apartment which the imagination can conceive. And although, on the whole, this perambulation was a pleasant business enough, it had its difficulties, not the least of which was that the servants of King Kodak seem to love darkness—not, be it said, because their deeds are evil, but rather because there would not remain much good in their labours if the light of day were permitted free access to their operations. In other words, the "materials" which are known to all men as domestic joys under the name of "Eastman film," bromide paper, &c., are so sensitive to light, that that generally esteemed form of energy has to be shut out as a mischievous fiend that is always ready to deal destruction around.

The Eastman factory is unique, for it carries on a manufacture which is not followed in any other place in Britain. We allude more particularly here to the manufacture of flexible celluloid film; and although, as will presently be seen, this represents but a portion of the business, it is, by reason of its unique character, the most interesting of all the operations carried on in this busy industrial hive. Many would indeed consider it worthy of premier notice if only because it is dignified with a large building block all to itself.

Entering this block, our attention is first of all forcibly arrested by a pungent smell, which can be compared to no simple or elementary smell which we have ever experienced. If one were to combine all the diverse odours of a chemist's shop with that of a sweet-stuff emporium, and were to empty half a pint of camphorated benzoline on the top of all, we should get a notion of it; but the result would never reach that height of perfection which the Eastman Company have attained in the creation of a substantial novel effluvium which combines an indescribable something which tickles the nose, brings tears to the eyes, and is, at the same time, suggestive of something nice to eat.

The smell comes from a number of big milk-cans—of the pattern trundled about at the railway stations—which contain a transparent, viscous fluid, which in consistency is a cross between treacle and soft-soap, and which we are told is the crude material from which—after sundry chemical and mechanical operations—flexible films will be made, films which are destined to receive upon their sensitive surfaces the images of places and peoples scattered over the civilized and uncivilized world. By beautifully adjusted machines, which are far too complex to be described without elaborate diagrams, this unpleasant looking compound is resolved into transparent flexible sheets, which by a further operation are coated, as glass plates are coated, with a highly sensitive emulsion. The compound film so formed is then carried from the coating room in light-tight tins to another department, where it is slit into ribbons, and afterwards reeled off into spools. All these operations are carried on in the most methodical manner by appliances which, so far as human ingenuity can make them, are automatic.

Everything in this factory is on the biggest scale. In the emulsion-making room, there are huge vats for the reception of the solutions, and these are emulsified in larger vats at a lower level. The mixture is afterwards run into great earthenware tanks, where it sets into the jelly form, to be aftewards relieved of its soluble salts by washing.

It has long been a moot point whether albumen paper—which has for so long been the principal printing medium in the hands of photographers—is destined to retain its position, or whether it is soon to be ousted from its place by paper in which gelatine constitutes the film. Papers of this latter kind have been for many years in the market, and although they were appreciated by the few, they did not make much headway until the Eastman Company introduced their "Solio" brand, and the Ilford Company their P. O. P. At the factory which we are describing we see the Solio paper being produced at the rate of 12,000 feet (42 inches wide) per day of 24 hours, for the demand just now for this paper is so great that the machinery is kept in motion day and night. The machine for coating this paper consists essentially of a trough of emulsion, into which, by roller motion, a long band of paper is dipped, and afterwards carried through a long room in festoons, so that it shall have time to dry before being further dealt with.

Here again are steam-pipes for heating the room, and an electrically-driven fan to carry away the moist air. When dry the Solio paper is wound upon a drum, carried to an adjacent room, where it is cut up and packed in various sizes for the market. We noted that every sheet is carefully examined for defects before being packed.

If gelatine chloride paper did not originate with the Eastman Company, we must certainly give them credit for finding out how to place it on the market in a convenient form. A shilling will purchase a packet of paper cut to any standard size which may be required, the number of sheets being, of course, proportionate to their dimensions. The comfort of finding these sheets ready cut to the size of one's negatives compares very favourably with the struggles involved in cutting up a full sheet of albumenised paper, as under the old method of printing.

It is impossible, in the space at our disposal, to give a full account of all we saw at these interesting works. In the Kodak department we saw the flexible film developed, while in the spacious printing rooms above, the skylights of which are fitted with extra moveable sashes, glazed with ground glass as a provision against direct sunlight, a small army of girls was busy with the printing frames. Some of the films sent in for development produce splendid negatives, and they serve to prove that the Kodak will do good work. Of course it occurs occasionally that the man who attempts dark interiors with snap-shots, and the other fond youth who rattles off all his exposures without removing the cap from the lens, are disappointed when their negatives do not quite come up to their expectations, but this is an episode common to all photographic systems. It may be mentioned here, as an example of the wholesale way in which the work is carried on at Harrow, that the developing and fixing solutions are laid on from tanks in the roof, and the operator has merely to turn a tap to draw the solution which he requires.

The bromide enlargement department is an important one ; but it does not call for special description. All the work is done by arc-light. The whole of the factory is lighted by electricity, and the entire heating arrangements are by means of steam pipes—an important consideration when it is remembered that celluloid is highly combustible.

And this brings us to the mention of a very important part of the factory arrangements. Although the place is entirely lighted by electricity, and warmed by steam pipes, so that no one need at any time strike a match within its walls, yet it is considered necessary to guard against accident by the institution of a fire drill. Every hand in the place knows what station to take up and what to do when an alarm of fire occurs, as it does occur now and then by way of test. No one knows when the alarm is likely to occur, but when it does come (in the form of a bomb explosion, a bell not being loud enough) all hands rush to their appointed posts. Canvas pipe escapes are rolled out of the windows, and one laughing girl after another slides down from second and third floor windows to the open space outside the factory. In the meantime, the local fire brigade, two miles away at Harrow-on-the-Hill, have heard the alarm, not knowing whether it is a true or false one, and have been known to present themselves at the factory in as short a time as eleven minutes. Presently tons of water are thrown over the building, until the order is given to cease operations.

It will easily be understood that the establishment of a large factory, which pollutes neither earth, water, nor air, is a great boon to the little town of Harrow. It finds pleasant work for young men and maidens, and the payment of a big weekly wage sheet is alone a benefit to the place. The Eastman premises cover seven acres of land, and before work could be done new roads had to be made to afford access to the factory.

We close our visit to this busy hive with the conviction that everything is being done there in a most thorough and painstaking way, and that there is a big future for film photography.

HOW TO COLOUR LANTERN SLIDES.

BY GEO. M. HOPKINS.

NOTHING is more interesting and satisfactory to the amateur photographer than to place upon the screen, by means of a good lantern, the results of the summer's work ; and, while it may be questioned whether anything can be more desirable for projection than a really first-class, well-toned lantern slide, yet experience proves that the majority of people who enjoy an evening with the lantern are pleased when a well-coloured slide is shown.

A suitable subject carefully printed and artistically coloured, when reflected from the screen, strongly resembles a huge water-colour picture, the great difference between such a picture and a water-colour being a superabundance of detail, which is inherent in photographic pictures, and which is not desirable in a water-colour. A photo can be made which will answer admirably for colouring which would not be satisfactory as an uncoloured picture. Such pictures are taken through a large diaphragm or with full openings. The foreground is made sharp, while the middle distance and distance are softened down by being a little out of focus ; however, it is not desirable to try to make negatives expressly for coloured pictures.

The print for colouring should be moderately light and without great contrasts. Inky shadows are to be avoided, and it is well to vignette off the distance to give atmosphere. The sky should be transparent, unless cloud effects are to be shown. While specks, pin-holes, and 'lint are very damaging to an otherwise fine lantern slide, they entirely spoil a picture for colouring. In a picture well broken up, as in a woods scene, where little sky appears and when there is no placid water, these small defects do little harm ; but in a sky or in a clear lake or pond, they can never be concealed or removed so as to be unnoticed, so that the first requisite for a good coloured lantern slide is a good print of the proper intensity, and with transparent lights. The second requisite is a knowledge of colours and colouring, and the third and last thing needed is an assortment of colours and brushes.

With regard to the slide itself, it might be mentioned in passing that anything which tends to harden the film in developing, fixing, or after treatment interferes with the free working of the colours. For instance, alum in the fixing bath, intensifying and reducing solutions all tend to harden the film and prevent the free absorption of colour.

The first operation in lantern slide colouring is to soak the plate in cold water until the film will absorb no more : then while it is still wet, go over the entire surface of the film with a thin wash of warm colour, which may be either yellow or pink, depending upon the subject. This kills the chalky whiteness of the high lights, and gives the entire picture a warm and desirable tone, even though the wash is not sufficiently strong to be detected when the picture is thrown upon the screen.

The colours used for this purpose are transparent aniline colours prepared for colouring photographs. They are labelled brown, blue, violet, flesh, orange, green, and so on. The ordinary aniline dyes may be used instead of the prepared colours, as they are practically the same. The manipulation of the colours is the same as in water-colour painting. The film is kept wet continually from the beginning to the end of the operation, but after the broad washes of the first warm tint and the final sky-colour, the water lying on the surface of the film is allowed to dry off, leaving the film still swelled and wet, but without the surface water.

The prepared colours can rarely be applied to the slide without being reduced with water. Sometimes the best effects are produced by mixing different colours before applying them, while in other cases the effects are secured by separate washes of different colours, superposed. Each wash of colour sinks into the film and is not removed by a subsequent wash.

Although an easel or support something like a retouching frame may be useful, the writer prefers to hold the slide in the hand. The wet plate is held in a slightly inclined position in front of a lamp provided with a plain opal or ground glass shade. The writer prefers artificial light for colouring, as the pictures are to be shown generally by artificial light, which is yellow. If the pictures are designed for projection by sunlight, it is undoubtedly better to colour them in daylight.

The first wash is preferably put on while the slide is held in an inverted position, and while it is still flowing the blue is added for the sky, at first very light near the horizon, increasing in intensity toward the top of the slide. After this wash is set and superfluous water has evaporated, the water accumulating along the lower edge of the plate is removed with the fingers, and the slide is turned right side up when the extreme distance, whether it be mountain or foliage, is covered with a light wash of blue, and this wash is brought well down toward the foreground. If the blue appears cold, it can be toned down by a very light wash of yellow or red. Trees in the middle distance can now be gone over with a light wash of orange or orange with a little of the flesh colour or pink added. When near the foreground a very light wash of green is applied to the foliage, but the raw green of the colour set cannot be used for this ; it must be modified by the addition of orange or of brown. If when applied the green appears too cold, it may be toned down by a light wash of brown, of orange or flesh colour. It is desirable to produce variety in the foliage.

Rocks in the distance are washed with blue and the colour is subsequently modified by washes of red or brown. Trunks of distant trees and some rocks may be left nearly the original colour of the photo, but near rocks and tree trunks may be tinted with brown, blue, or warm green, and subsequently modified by washes of green, red, brown, yellow, or orange.

It is useless to trace the smaller branches of trees and shrubs, and it is rarely necessary to deal with single leaves or blossoms ; when this must be done a jeweller's eye-glass is required, and fine, small brushes are used, great care being taken to keep within the outline of the object being coloured. In all this work, the artist does well to remember that the colouring is to stand the test of great magnification and strong light.

The plate is apt to dry out in some places while the colouring is going on at other places. As colouring cannot be successively done on a dry surface, it is important to wet the surface before proceeding. This is done by applying water with a soft camel's hair brush. After the surface water has disappeared the colouring may proceed.

It is obviously impossible to mention every modification of colour that may be produced by mixtures and washes. This is something to be acquired by practice. The writer uses very few colours, rarely more than the following : blue, green, brown, orange, flesh, rose, and yellow. The last is a strong colour which must be applied with caution. Green and blue are also strong colours which can never be applied without the admixture of a warm colour, or a subsequent wash of the same. Brown in different strengths has a large application. It is useful in toning down bright greens, for rocks, tree trunks, earth, &c. A wash of blue over the brown produces a different but useful grey.

The principal points to be observed are to keep the plate always wet, to use light washes, to modify colour by subsequent washes, and in working up details to preserve the outlines.

Should a small area be over-coloured, the colour may generally be partly removed by means of a soft brush charged with clean water, the brush being gently and repeatedly passed over the spot. The brush is frequently washed during the operation. When the broad washes show streaks, or when the entire slide is too highly coloured, or the effects are unsatisfactory the only remedy is to place the slide in cold water and allow it to soak, with occasional changes of water, until the colour is partly or entirely removed.

It is well enough to bear in mind that a coloured lantern slide bears all the colour that is to appear on the screen; consequently, it must be more highly coloured than a transparency for direct vision. On the screen, however, a picture is better under-coloured than over-coloured. It will often be found that prints which are too light and flat for use as plain slides answer very well when coloured, and pictures which are too dark for use as plain slides may be tinted with blue and presented as moonlight scenes.

Brushes for this work should be of the best quality, very soft and pliable, and such as are used for working up detail must have a fine point.

This method applies to portraits and figure pieces.

The coloured slides are generally mounted in the same manner as the plain ones. If, however, the highest perfection is sought, thin plate glass is used for the sensitive plates, and glass of the same kind is used for covers, the cover and coloured picture being cemented together with Canada balsam. Made in this way, the slides are more transparent; but, in view of the extra trouble and expense, the improvement over the uncemented slides is hardly sufficient to warrant the general application of this method.—*Scientific American.*

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

6,473. DANIEL CAMPION and LEON DELACRE, 19, Southampton Buildings, Chancery Lane, London, "Improved Detective Camera."—*27th March*, 1893.

6,491. EPHRAIM NORDEN, 52, Jerningham Road, Hatcham, London, "An Improved Method of Photographic Printing in Bromide of Silver."—*28th March*, 1893.

6,501. CHARLES ARTHUR ALLISON, 52, Chancery Lane, London, "Improvements in Processes of making Transparent Photographs on Glass" (Francis Bernhard Foster and George Gardner Rockwood, United States). — *28th March*, 1893.

6,554. THOMAS SAULT, 6, Breams Buildings, Chancery Lane, London, "Improvements in Films for Photographic Cameras."—*28th March*, 1893.

6,698. DUNCAN KENNETH CAMPBELL RUSSELL, 67, Morningside Road, Edinburgh, "Improvements in Photographic Apparatus for making the Negative appear erect and increasing its apparent size under adjustment."—*30th March*, 1893.

6,773. CHARLES BELOT, 4, South Street, Finsbury, London, "Improvements in or connected with Photographic Shutters."—*30th March*, 1893.

Specification Published.

2,707. *7th February*, 1893.—"Photographic Retouching Devices." A. S. HARRY, 105, Market Street, Steubenville, Ohio, U.S.A.

The apparatus comprises a suitable rocking hand-piece, an electro-magnet carried thereby, a stylus movably connected with the hand-piece and adapted to be projected by the armature of said magnet, springs for retracting said stylus, and side plates secured to the hand-piece. Within the frame of the hand-piece is secured the electro-magnet; the vibrations of the armature being regulated by a set screw, a jam nut carried by the set screw serving to hold the latter at the desired adjustment. The free end of the armature carries a weight working in a slot in the front of the hand-piece, and is designed to engage with the upper surface of a projection working in said slot and carried by a stylus, which latter is free to reciprocate in guides carried by the hand-piece; or the weight may be dispensed with and the armature extended to engage said projection, the under surface of which is engaged by a spring which exerts pressure upwards and returns the stylus to its normal position. The current being applied to the magnet, the device is taken in the hand with the base of the hand-piece resting upon the negative to be retouched. The point of the stylus is now brought over the imperfection in the plate, and, by rocking the hand-piece forward, the point is caused to contact with and remove the imperfection.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.
April 6th.—Mr. E. J. WALL in the Chair.

MR. G. F. WILLIAMS read a paper and showed several plates in illustration.

Mr. A. COWAN said that he could not follow all the points in Mr. Williams' paper, nor could he speak with regard to orthochromatic plates, but as to the general accuracy and utility of the method of Messrs. Hurter & Driffield he felt very confident.

Mr. W. E. DEBENHAM said that, as his experiments had been referred to in the paper, he would say that he could not understand how anyone could assert that orthochromatic plates would maintain the same relative rapidity to candlelight and daylight that existed with ordinary plates. He quite agreed that for different varieties of ordinary plates the relative rapidities to various sources of light were small, and that a great deal too much had been said about that, but when orthochromatic plates were tested the difference was very great.

Mr. AUSTIN EDWARDS said that photographers who used Warnerke's actinometer did not depend upon the highest visible number, but took density into account.

Mr. J. CADETT said that it was hardly fair for Mr. Williams to propose to take the verdict of a jury of persons who had had no experience of the Hurter & Driffield system. The pith of the system was to show the relation between density and speed. He acknowledged that he had sent out one batch of plates marked with an incorrect speed number, but that was on account of the variation of the standard candle. Since then, every testing had been made in conjunction with a trial plate the speed of which was known, and so any variation in the candle power was detected and allowed for. They had Captain Abney's authority for saying that rapidity could not be tested except by taking density throughout the scale.

Mr. WILSON (Phœnix Plate Company) had an open mind on the subject, but thought that within its own limits, the limits of correct exposure, the Hurter & Driffield system was perfect; but he would like to know how far the spectrum question comes in. He had heard it said that two plates might be equally sensitive at midday, and one of them be twice or three times as fast as the other later in the day. Other points requiring to be cleared up were the effect of different developers—rodinal had been said to bring out an image with one-third of the exposure required for pyro—and the effect of temperature in development.

Mr. Cadett said that Hurter & Driffield had stated that there still remains the question as to whether a plate might not be different with regard to different developers.

Mr. P. Everitt said that nothing so far had been said with respect to the examples shown by Mr. Williams. He believed that gradation could be altered by development.

Mr. Williams replied, saying that Mr. Cowan had taken up the question of density, and that Mr. Cadett had twitted upon the proposal for a jury. His own belief was that density was not the point, but the giving of a perfectly correct exposure, and for all the parts of a picture when was that given? Never. He had challenged Mr. Cadett to nominate a jury. This Mr. Cadett had not done, and, consequently, he came to that Society as to a jury. He repeated, density had no sole relation to rapidity. Mr. Cadett said that he ought to have tested the system. As a fact he had tested it, and had found a plate marked 155 come out as 87.

Mr. Edwards said that plates were made for use in the camera, and any test that did not conform with a camera test was useless. As to relative rapidity of isochromatic and ordinary plates to different light, he supposed that Mr. Cadett would admit that he was altogether in the wrong.

Mr. Cadett admitted that, but he had merely repeated Messrs. Hurter & Driffield's statement.

The Chairman thought that they might acquit Mr. Williams of having any grudge against the Hurter & Driffield system. For himself he agreed with Mr. Wilson. Hurter & Driffield had always spoken with regard to the period of correct exposure.

Hackney Photographic Society.

Tuesday, April 4th, 1893.—Mr. F. W. Gosling in the Chair.

Question: Is there a limit to length of time between printing and developing the platino paper, cold process, without deterioration?

Reply: It is always advisable to develop at once; paper absorbs moisture, even when under mackintosh the edges will. Undeveloped prints were put away for six, four, and two months with recent ones; the last only were good. When the paper is dry it curls film-side outwards, and when damp, the opposite. It is not generally known that if the negative be very thin indeed, a good print can be obtained by printing under light blue glass. Also, if a print be very much over-exposed, so that all the details are out, a good result comes by fixing in the acid bath without developing.

South London Photographic Society.

Annual Meeting, April 5th.—Dr. T. G. Munyard in the Chair.

The Committee presented their fourth annual report, which showed that the Society was continuing to progress, and that the number of paid-up members was 105. The proportion of working members had, during the year, largely increased. At the bi-monthly meetings, demonstrations and papers of great interest had been given and read. The Club camera (12 by 10), lantern, and slides had been in much request. Several valuable contributions to the library were made during the year, and the demand for the loan of the various works had been good. An Excursion Secretary was appointed at the beginning of the year, and endeavours were made to put the outings on a better footing, which had met with some success. An exhibition on more extended lines was held in November last, and favourably commented upon by the photographic press. The treasurer's report showed that the members had obtained the maximum benefits for their subscriptions, a considerable amount having been expended in apparatus, which left the accounts just balancing themselves. The report and balance-sheet were adopted, and the election of officers proceeded with, which resulted as follows:—President: F. W. Edwards, Esq.; Vice-Presidents: Maurice Howell, Dr. T. G. Munyard, W. Rice, and H. G. Banks; Committee: Messrs. Boxall, Buckle, Eldridge, Esler, Fellows, Greaves, Lester, Lyon, and Miller; Curator, G. H Moss; Treasurer: E. A. Whitby; Hon. Secretary: Charles H. Oakden, 51, Melbourne Grove, East Dulwich, S.E.; Hon. Assistant and Excursion Secretary: W. F. Slater, 169, Southampton Street, Camberwell, S.E. The Affiliation Scheme was discussed, and it was decided to join the Affiliation Committee.

Central Photographic Club.

As already announced, a meeting of intending members and those interested in the Central Photographic Club will be held on Monday evening next, April 17th, at the Memorial Hall, Farringdon Street, when the chair will be taken at eight o'clock precisely.

The principal object of the meeting will be to receive the report of the Executive Committee appointed on March 6th to

(1) Select suitable premises.

(2) Decide upon what financial basis the Club should be conducted.

(3) Draw up a set of rules for the government of the Club.

In regard to the first, the Joint Executive Committee immediately appointed a Premises Sub-Committee to seek for suitable premises within a limited area which might fairly be considered central, and after considerable trouble and investigation, the Sub-Committee recommended the Executive Committee to decide on premises in Fleet Lane, Farringdon Street, as being in every way suitable for the purposes of the Club. The Executive Committee have endorsed the recommendation, and the meeting on Monday next will be asked to adopt it.

As to finance, the Executive Committee unanimously agreed that the Club should be administered and carried on by a limited company, so that the liabilities of members might be restricted to the amount of their annual subscription, the profits, if any, after 5 per cent. has been paid to the shareholders, being devoted to the benefit of the Club. A considerable proportion of the capital has already been subscribed by the members of the Committee and friends.

After careful consideration, the Committee have adopted rules for the government of the Club.

Bye laws for the Club House, and such other rules and regulations as may be found necessary when the Club premises are opened, will be drawn up by the Committee, and submitted to the first general meeting of members for approval.

It is hoped that as many as possible intending members of the Club will attend the meeting on Monday next. The Hon. Secretary *pro tem.* (Mr. Thomas Bedding, 2, York

Street, Covent Garden, W.C.) has already received a very large number of applications for membership from all parts of the country, and from both professional and amateur photographers, and the Executive Committee anticipate that the adoption of the above and other recommendations to be made will enable them to approach all classes of photographers in London and country with the certainty of obtaining such a numerical support as will result in the formation of the largest photographic club in the world—a club that shall be at once a home, a rendezvous, and resort for all those interested in photography, whether residing in London or the country—a powerful agency in furthering photographic progress, and a representative force in each of the many branches of modern photography.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

Meeting at Jubilee House, April 10th, 1893.

MR. J. HUMPHRIES, F.S.A., the former president, attended, and showed samples of a new lantern plate which had been patented. The great advantages claimed were that it was unbreakable and non-burnable, thus being able to stand the fiercest heat produced in any lantern. The support was a prepared mica. Great trouble had been taken to find a way of treating the mica to give it such a surface as would take and retain colour, but this he claimed had at last been accomplished. The specimens he produced were all by a mechanical process, but he expected that they would shortly be on the market coated with emulsion for ordinary photographic use. The mica was beautifully clear and translucent, of a fine white colour, and absolutely free from spots and blemishes.

Mr. COX opened a discussion on development. He restricted his remarks to the pyro developer, as he found he could get results with that agent that were not surpassed by any of its more modern rivals. He recommended sulphite of soda as the preservative, with citric acid to render it neutral, using four ounces of sulphite and eighty grains of citric acid to the ounce of pyro. He produced some of his stock solution, which had been kept eighteen months, and it had only changed to a straw colour. He dealt fully with the development of over and under-exposed plates, and for the latter recommended a preliminary bath of either hypo (1 or 2 parts to 1,000 of water), or a weak solution of ammonia, followed by a developer weak in pyro, strong in ammonia, and strong enough in bromide to prevent fog being caused by the ammonia, and followed, should the negative be wanting in density, by a fresh solution strong in pyro and weak in ammonia and bromide. To get the fullest gradations of nature, a thickly-coated plate was necessary, as, although printing density could be obtained on a "starved" plate, the range of tone would be limited. He always used cathedral green glass and one thickness of canary fabric as being better to work by than a ruby light, and, by exercising care in keeping the plate from the direct light-rays, no fog caused by light would be found to take place.

A most interesting discussion ensued, in which Messrs. Beadle, Mattocks, Gregory, McIntosh, Wall, Smith. Marchant, and others took part.

Mr. MCINTOSH mentioned that metabisulphite, if used as a preservative, became more acid by keeping, and required the addition of more ammonia, often leading beginners to think their plates under-exposed.

The award for the best print from plates exposed at the outing at Penshurst was gained by Mr. H. Smith.

Next meeting on the 24th, when the subject of "Retouching" will be treated by Mr. J. MATTHEWS, who will illustrate his paper with lantern slides.

WEST LONDON PHOTOGRAPHIC SOCIETY.

ON March 28th, Mr. H. PEAL, President of the Ealing Photographic Society, gave a lecture on "Copying Engravings and Drawings." As requisites, he demanded daylight, preferably a top light including a wide angle of sky, and appliances specially arranged for the purpose. The lecturer described the apparatus employed by himself in copying engravings in books, consisting of a baseboard of box-girder form with sliding carrier for the camera, and an adjustable frame to hold the book or engraving. He advocated the careful ruling of sets of lines in rectangles upon the ground-glass screen of the camera to ensure facility in focussing. The camera front was raised and lowered by the turning of a disc mounted excentrically. Coming to the method of working, the lecturer stated that the engraving must be centred with the lens, then focussed, and the final adjustment given. He used small stops ranging from *f*/11 to *f*/22 to obtain due sharpness. Mentioning the exclusive employment by professional photographers of wet collodion for copying, he claimed equally good results with less trouble from dry plates, such as the Mawson photo-mechanical plate. He found no advantage in backing the plates, but he impressed his hearers with the necessity of carefully dusting them and of excluding dust from the dark slides. For regulating exposure he used the Watkins' meter. For reference, he marked all negatives with a series number, a subject number (in relation to the Watkins' meter), and an initial to indicate the developer used. After mentioning that he employed his negatives for the double purpose of producing prints and making lantern slides, the lecturer described a convenient apparatus for the latter purpose, in which the top light was reflected through the negative by a ground opal glass plate. An ingenious arrangement of cams was employed for centring and holding the plate in the camera. For development, the new developer, amidol, had many advantages, notably its quickness of action, cleanliness, and power of developing several plates in rotation, whilst it enabled the photographer to do with one-third of the usual exposure, and the developing dish required no rocking. The formula was :—4 grs. amidol, 45 grs. sulphate of soda, ½ gr. bromide of potash, to 1 oz. of water. The lecturer developed two plates with this solution, under somewhat adverse conditions, with complete success.

A discussion followed Mr. Peal's lecture.

LEEDS PHOTOGRAPHIC SOCIETY.

A MEETING was held on Thursday, the 6th instant; Mr. J. H. WALKER, President, in the chair.

The Indian and Colonial set of slides belonging to the P.S.G.B. Affiliated Societies and the *Photography* prize slides were exhibited. Both sets were very much admired, many of them receiving hearty applause.

SHEFFIELD PHOTOGRAPHIC SOCIETY.

THE ordinary monthly meeting of the above Society was held in the Masonic Hall, Surrey Street, Thursday evening, Mr. GEO. BROMLEY in the chair, when, after the election of a new member, Mr. DRAPER produced a negative developed by amidol, which was the cause of a great deal of discussion and valuable information. After votes of thanks the meeting terminated.

Brixton and Clapham Camera Club.

Next meeting, April 18th. Lecture by T. C. **Hepworth**, Esq., F.C.S., on "Photography applied to Journalism," with lantern illustrations.

Harringay Society.

April 6th.—Mr. **Watson** in the Chair.

A demonstration of the "Frena" system was given by Mr. **Bynoe**, illustrated with diagrams on the screen. The demonstrator first showed the new system of changing films and the use of the swing-back, also the very ingenious shutter. The whole demonstration was very practical, and some views taken with the "Frena" were much admired. The optical lantern was kindly lent and manipulated by Mr. Dudley Towers. A vote of thanks was proposed, and well responded to.

Nottingham Mechanics' Institution Camera Club.

The ordinary meeting of the members was held, under the presidency of Mr. W. J. **Abel**, on Friday, 7th inst. The minutes of the previous meeting having been read and signed, Mr. J. E. Stapleton was nominated for membership, and Professor Heaton, of the University College, Nottingham, was elected a member, after which there was an exhibition of South African slides. The slides, which were a very fine set, pleased the audience, who singled out for special praise those representing the Perie Forest, the astronomical set, the bridge at Ceres, and the Botanical Gardens.

Hackney Photographic Society.

Tuesday, March 28th, 1893.—Mr. E. **Puttock** in the Chair.—Question: Mr. **Gosling** asked could a portrait lens be used for landscape work. Reply: Mr. R. **Beckett** said, Yes, in many instances, but there was a weakness on account of the liability to flare spot. Stopping down decreased the spherical aberration.—Mr. **Dean** asked where a table could be found in which the relative proportions between light reflected and that refracted from a polished plane surface of glass at various angles, ignoring the factor of opacity in the glass diminishing the strength of rays refracted. Mr. **Avent** thought it could be found in Monckhoven's "Optics."—Work was shown from Mr. **Cross**.—Mr. **Grant** said that when the Sandell plate first came out, he took a view at sunset, light strongly reflected from water, very dark under trees, without halation, with an exposure that could not have failed to have produced it on any other plate.—Mr. **Sodeau** suggested, for comparison, to try exposures on a Sandell and an ordinary, backed with caramel and burnt sienna.—A series of views by Mr. **Scamell**, entitled "London Street Cries," was then put through the club lantern, after which a few slides by Mr. **Hudson**.

Ashton-under-Lyne Photographic Society.

On Wednesday evening, March 29th, Dr. A. **Hamilton** gave a demonstration on "Platinotype Printing" before a very good attendance of members. He gave what is called the cold process (new). He developed three prints. The first was done by passing the print through the solution The second was by placing the print on a sheet of glass and then by means of a brush distributing the developer over it. The last was a picture which he had not been able by any other means to get a satisfactory print from before. By this process he brought it out beautifully. He did this by local development with the brush.—Mr. C. E. **Redfern** was in the chair.

The Photographic Society of Japan.

A regular meeting of the above-named Society was held on Friday, March 3rd, at the rooms of the Geographical Society, Nishi-Konyacho, Kiobashi, Tokyo, beginning at 5 p.m., Professor C. D. **West** in the chair.

The following gentlemen were unanimously elected members of the Society:—Mr. G. Tanaka, Mr. O. Keil, Mr. F. Nabholz, Mr. O. Bergmann, Mr. F. Bengen, Mr. F. H. Trevithick, and Mr. H. Hosoi.

Mr. **Kajima Sebi** showed a series of cabinet views taken by members of his household in competition and for prizes to be given by himself. He asked the members to decide as to the excellence of these, which was done accordingly, first and second prizes being awarded.

Some very fine photographs were exhibited, sent by J. B. Edwards & Co., London, showing the difference between the photographs taken on ordinary plates and on their isochromatic plates; the contrast between these was very striking, especially in the photographs of flowers.

Mr. **Kajima Sebi** then exhibited an extraordinary large bromide print (36 by 42 in.) taken direct on a negative in his big camera exhibited at a previous meeting.

Some views, taken by the Dallmeyer telescopic lens, were sent to the meeting by Mr. W. K. **Burton**, he himself not being able to be present. The telescopic lens was again shown; this time fitted with gear to enable the focussing and spherical aberration adjustment to be made more readily.

Mr. **Beilter** showed a new lens by Carl Zeiss, of Jena, called the apochromatic triplet. It is claimed that this is more complete and correct for spherical and chromatic aberration than any lens which has hitherto been produced, and certainly some extremely beautiful views of cabinet size, taken with the lens, were exhibited, as also some larger views on aristotype paper taken by the same instrument; these were much admired.

Mr. **Munster** exhibited J. Carpentier's opera-glass magazine camera, with accompanying enlarging apparatus. The negatives taken with this instrument are 4.5 by 6.0 c.m. in size, but they are most easily enlarged to 13 by 18 c.m. by the additional apparatus shown. The members present showed great interest in this newest of photographic inventions.

The meeting terminated with a vote of thanks to the Chairman.

*** *The calls upon our space are such that we must postpone Answers to Correspondents until next week.*

Begging letter writing is not quite an extinct profession. The latest exponents are quite up to date. In the suburbs a favourite plan is for a woman, dressed in lugubrious weeds, to go about soliciting donations to enable her to start in business for herself. She enlists the sympathy of the householder by representing herself as the widow of the "gardener who used to work here," and, so that there should be no deception, pulls out a photograph of her deceased husband. As, in nine cases out of ten, the suburban resident has no very distinct recollection of the many jobbing gardeners he has employed, any photograph answers the purpose, and the "widow" is often successful with her story.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1807. APRIL 21, 1893.

NOTES.

If we want instances of widely divergent opinions we cannot do better than seek for them in artistic circles. It is, of course, as well that people should not all think alike, and yet it is strange that the same things should raise within them such antagonistic ideas. We need travel no farther than the recent Camera Club Conference to discover this.

HERE, however, is another instance of this diversity of thought. Mr. Grant Allen has been writing strongly against London and all its works. In the course of a single article he calls it "a squalid village," says that it would be an insult to any other capital of Europe to compare it with the British metropolis, and even by the side of Glasgow it is mean and miserable. It has no architecture, no views, no streets, no ground plan, and as to beauty—it has none. So far Mr. Grant Allen.

IN another article contributed by M. Augustin Filon to a French paper, a very different account—and to our minds a far truer one—is given of our city. Indeed, M. Filon goes almost to the other extreme, for he expresses qualified admiration even for a London fog, in so far that it is able to produce artistic atmospheric effects. The French writer calls London an admirable city, and its parks and gardens he describes as woods and meadows, "bits of living nature thrown like oases into the desert of bricks and mortar." He is also fervent in his admiration for the silver Thames, and tells us that, during a steamboat journey between Gravesend and London, an artist companion asserted that he had noted quite two hundred pictorial masterpieces. We wonder whether this eloquent Frenchman — who saw in St. Pancras Hotel "a feudal chateau," and in Euston Station a resemblance to the tomb of some prehistoric conqueror—carried a camera with him. With such artistic instincts as he evidently possesses he would be able to secure pictures of London such as have seldom been attempted.

THE Paris correspondent of the *Daily Telegraph*, lately calling attention to M. Sarasate's concerts in the French capital, writes that he saw among the audience the veteran painter, M. Harpignies, busily sketching the Spanish violinist, and "Mr. Whistler, who, although he had no pencil in his hand, was doubtless fixing the same features in his mind's eye." The writer evidently forgets that one of Mr. Whistler's most successful portraits is of Sarasate, and that he, therefore, had little need to study features already so well known to him.

A CORRESPONDENT, writing from Redlands, California, tells us that the country is an ideal one for outdoor photography as far as clear, bright weather is concerned, with a complete absence of such muggy days as are common in London. But in the summer time the sun is just a little too much in evidence to be comfortable, 118° in the shade being often experienced. Redlands, however, lies about eighty miles inland; on the coast the heat is far less intense, and is always tempered by the sea breeze.

IT will be remembered that some months back we published the reproduction of a flash-light picture, which had been taken at Windsor Castle on the occasion of the representation there of Mascagni's opera, "Cavalleria Rusticana." A similar successful photograph was taken when Mr. Irving's company had the honour of playing "Becket" before Her Majesty, the picture being taken by Mr. Cartland with Slingsby's flash-light apparatus.

The various expeditions sent out to observe the solar eclipse of Sunday last appear to have been fortunate in the weather which they experienced. From Senegal one of the French observers telegraphs to the Paris Observatory that the atmosphere was rather misty; but the South American observers were favoured with cloudless skies. Professor Pickering telegraphs that the atmospheric conditions prevailing at Minasaris during the eclipse were perfect, and that he saw four streamers proceeding from the corona, two of which stretched over a distance of more than four hundred and thirty-five thousand miles. The photographs taken of the phenomena are, we learn, both numerous and satisfactory.

We are requested to note that the patent disputes between the manufacturers of amidol, metol, glycin, diamidophenol, &c., have been settled amicably by mutual consent, and in future the sale of these developers in Great Britain and Colonies will be effected through Messrs. Fuerst and Messrs. Arthur Schwarz, in London, being sole agents for Professor Hauff, of Fuerbach, and Dr. Andresen, of Berlin, respectively. All photographic dealers will now supply these developers.

The coloured photographs shown at the Crystal Palace Exhibition, which were briefly noticed in our review last week, we now learn are specimens of the photographs sent in for the Brun's Glossy Colours Competition a few months ago, and are exhibited by Messrs. Schwarz & Co. In the absence of a catalogue, this information was necessarily withheld from our reviewer.

A judgment of the *Tribunal de première instance* of Brussels has caused the greatest astonishment in Continental photographic circles. The Court has decided that a photographic portrait does not constitute a work of art, and is not protected under authors' rights specified by law. The defendant in the case is the proprietor of the journal *Paris-Bruxelles*, and in the latter part of last year published a number of portraits, reproduced from photographs, of the managers and principal artistes of the various Brussels theatres. As these photographs were reproduced without permission, the firm of photographers concerned sued the proprietor of the journal for 10,000 francs damages, with the curious result already stated.

The judgment of the Court lays it down that the law under which proceedings were taken confers the right of author only upon those engaged in the plastic arts—that is to say, painting, sculpture, architecture, and engraving—and that a simple mechanical and chemical process cannot be elevated into an art. Further, that the photographer exercised a purely commercial profession appertaining to that of a trader, and not to that of an artist, since it has for its object the reproduction and sale of photographic portraits. Though, decided this learned court, artistic intelligence might serve to determine the choice of a photographic pose, yet the principal object of the profession exercised by the plaintiff did not consist in the production of works of art, but in the material reproduction of portraits with the assistance of physical processes for the sole purpose of a commercial gain!

Concerning this stupendous decision we can only say, with M. Léon Vidal in *La Moniteur de la Photographie*, that all comment is useless. We may, at least, congratulate English photographers upon the fact that their rights are not in the keeping of Belgian law.

Not so long ago the "noble savage" who dreaded the camera could save himself by taking to his heels. Instantaneous dry plates were not, and the disappointed traveller who could not coax the savage into sitting for his portrait had to do without it if he could not procure it by stratagem. Those days are passed. One of the most curious photographs taken in the polar regions by Mr. Meehan, who accompanied Lieut. Peary, represents two Esquimaux women, who did not want to be photographed, running away as fast as their somewhat cumbrous sealskin nether garments will allow them. In this instance the race was won by the photographer, as the picture shows.

If it be true, as Signor Mantegazza, who has written an essay on the subject, tells us, that a man's history can be written from his wrinkles, photographers who yield to the besetting sin of modern photographic portraiture — excessive retouching — ought to lay themselves open to severe criticism by professional physiognomists. But how is one to account for a curious fact? There are half a score of periodicals which have physiognomists attached, and every week publish columns of analytical comments on the photographs received, yet never by any possibility is there any complaint of the absence of characteristic lines. As it is a certainty a large proportion of the photographs submitted are doctored, the power the physiognomist apparently possesses of reading character from absolutely characterless faces is something marvellous. But then it would never do for a physiognomist to admit that he had nothing to say about a photograph, especially if he is paid at so much a column.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Intensifying Platinum Prints—Intensifying Prints after Fixing—Reducin, a New Developer—Chromo-Collotype.

Intensifying Platinum Plates.

If it is desired to strengthen a finished platinum print, the negative of which is not available, for instance, for copying or judicial purposes, the following method, which has been formulated by Herr R. Ed. Liesegang, may be advantageously employed. The platinum print, after being moistened in water, is placed into a mixture of

Aristogen	10 parts
Citric acid, 2 per cent. solution	5 ,,
Water	150 ,,

to which 10 parts of a 5 per cent. silver nitrate solution has been added just before use. After a few minutes, a precipitate of finely-divided metallic silver will be produced in the bath, which, however, does not alter its qualities. The print soon becomes denser, acquiring at the same time a brownish-red colour, the whites remaining, however, absolutely clean ; only, in cases where the prints have not previously been moistened with water, the precipitate formed in the bath is likely to adhere to the paper. The print is treated afterwards either with hypo or with a combined toning and fixing bath. The brownish-red tone of the picture is not removed by fixing though it will be reduced to some degree. With the combined toning and fixing bath, a colour may be produced which comes very near to the tone of platinum prints. It may be mentioned that the "aristogen" which forms part of the above formula is the ready prepared developer for faintly-printed aristotype prints which the firm of Ed. Liesegang introduced some time ago. In place of it, paramidophenol, pyrogallic acid, metol, and other developers may be used ; but it is then necessary first to acidify them rather strongly. With pyrogallic acid a black tone will be obtained. The above-described method is a perfectly reliable one, and the intensification may be brought to any desired degree.

Prints obtained on various kinds of printing-out paper may be equally well intensified after fixing. It makes no difference whether they are toned or not, but it is necessary to wash them previously very thoroughly, as the least trace of hypo causes yellow fog. The following experiment was made by Herr Liesegang :—A finished print on aristotype paper was placed in an aqueous solution of hydroquinone, citric acid, and silver nitrate. (The proportion of these substances is of no importance ; however, a sufficient quantity of acid should be present in order to prevent the reaction between the hydroquinone and the silver salt.) At first no intensification of the print took place, on account of the fact that no precipitate of silver was produced in the liquid. But as soon as a few drops of ammonia were added so as to render the bath just neutral, a slight precipitate of silver was formed, and, at the same time, intensification of the image took place. If the latter was not sufficient, a few drops more of ammonia were added. In this way the prints may be strengthened to any degree. It should be borne in mind that, previously to this treatment, the prints, more especially those on gelatine emulsion paper, should be well soaked in water in order to prevent the silver deposit adhering to the film. In adding the ammonia, care should be taken that it does not drop directly on the print, because it would otherwise produce yellow spots.

Reducin. — Again a new developer! Its name is "Reducin," and it is prepared by the Chemische Fabrik auf. Actien vorm. E. Schering, of Berlin. Like the amidol developer, it reduces the exposed silver salt without the addition of any alkali. Professor H. W. Vogel, who has compared the new developing agent with the pyrogallic acid developer, exposed two plates equally long to the same subject. The one he developed with pyro and soda, the other with reducin, and in both cases an equal quantity of potassium bromide (one drop of a 10 per cent. solution to each 10 per cc. of developer) was used. The formula of the reducin developer was the following :—

Sodium sulphite	50 grammes.
Water	1,000 cc.
Reducin..............................	5 grammes.
Sulphuric acid	12 drops.

With the above proportion of reducin the development acted with the same rapidity as the pyro developer, but it would very likely have acted more rapidly if a larger proportion of reducin had been added. With reducin the image was very soft and harmonious, whilst with pyro the lights of the negative became very dense and opaque, so that it produced harsh prints. After fixing, the negatives developed with pyro and soda were decidedly spotty, whilst those developed with reducin were smooth, only some of them showing a few small dots. In the washing bath the films of the pyro negatives came off at once, whilst the films of the reducin negatives remained on the glass, the few small dots drying off entirely in the air. From this the author deduces that reducin deserves attention because it works without alkali and gives softer negatives than pyro. The same may be said, of course, of the amidol developer.

Chromo-Collotype.—A very fine and interesting specimen of chromo-collotype, produced with only three colour plates, has been issued with the last number of the *Phot. Correspondence*. It is the photographic reproduction of a bouquet, made by Herr O. Hruza, and printed by Ed. Sieger, of Vienna. According to the theory of Professor Vogel and of Dr. E. Vogel, who have obtained also very good results with the same process, the sensitisers which are used to render the plates colour-sensitive should be spectroscopically identical with the pigments corresponding to the three plates. With regard to this the method of Herr Hruza differs from that of his predecessors. The sensitisers are not at all taken into consideration by him ; he determines the selection of the pigments solely upon the colour screens which are used during the exposure. The colour screen and the pigment should be complementary. There are, for instance, a larger number of sensitisers for red, which are not spectroscopically equal though the same colour screen, and naturally also the same pigment, is sufficient to obtain the desired result. By the employment of colour screens only those rays are admitted to the plates for which they are destined ; in the case of red, for instance, notwithstanding the sensibility of the plate may extend to green or blue, it will not at all go into operation, because only the red rays are let through by the colour screens ; the same is the case with the other screens. All depends, according to the author, upon the correct selection of the screens which extract the primary colours of the coloured object. The screens used by Herr Hruza are glass cells, containing, for orange, cochineal-red with anilin-yellow (1 : 100) ; for green, malachite-green (1 : 200) ; for violet, aethyl-violet (1 : 500). For the reproduction he uses almost always home-sensitised gelatine plates and only seldom for blue-sensitiveness the ordinary wet collodion plates. Very important is also the correct respective intensity of the three negatives ; if one of them prevails in any kind in printing, the mixed colours will, of course, obtain an appearance which does not correspond to nature. Finally, it may be mentioned that the screen for violet gives the printing plate for yellow, the screen for green that for red, and the screen for orange the printing plate for blue. The three primary colours are superposed in the finished print.

PHOTOGRAPHY OF THE SOLAR CORONA WITHOUT AN ECLIPSE.[*]

BY GEORGE E. HALE.

In a recent number of the *Comptes Rendus*,[†] M. Deslandres describes some attempts made at the Paris Observatory to photograph the solar corona without an eclipse. Two exactly similar prisms are placed with their faces parallel, and the base of one opposite the refracting edge of the other, as in Newton's classic experiment on the recomposition of light. Instead of being placed very close together, however, the prisms are separated by a considerable distance, so that the second prism receives only a portion of the spectrum formed by the first. Sunlight being employed, and the recomposed light on its emersion from the second prism falling on a lens or mirror, a coloured image of the sun is obtained. If one of the prisms is placed perpendicularly to the line joining the two, all the colours of the spectrum enter successively into the formation of the image. The idea is to photograph the surroundings of the image with light of various colours, in the hope of finding that at some region of the spectrum the light of the corona is so much brighter than the diffused light of the sky that photographs of the form of the corona can be obtained without an eclipse. On certain of M. Deslandres' plates, especially those for which ultra-violet light was used, corona-like forms appear around the solar image ; but that they truly represent the corona, and do not result from instrumental or photographic defects, has yet to be established, as M. Deslandres himself points out.

At a meeting of the Section of Mathematics and Astronomy of the Chicago Academy of Sciences on December 6th, 1892, I described in detail a method of photographing the corona without an eclipse, devised by myself in April, 1892, which is based on exactly the same principle. I proposed to isolate light of any desired wave-length by means of a spectroheliograph, and thus to photograph the sky surrounding the sun, employing such a region of the spectrum as experiment proved to be best adapted to show the corona on the background of the sky. Professor Vogel's measures of the absorption of the solar atmosphere at the centre and edge of the disc show that the absorption increases more rapidly for short than for long waves. In his experiments on photographing the corona without an eclipse, Dr. Huggins recognised this fact, and endeavoured to restrict photographic action to the blue rays of the spectrum by the use of coloured glass screens, and specially prepared plates. Results obtained in this way, while not demonstrating with certainty that the photographs truly represent the corona, were more encouraging than those secured with absorbing media of other colours.[*] In my own consideration of the subject, I was led by Professor Vogel's measures to believe that, within certain limits, the brightness of the corona with respect to the surrounding sky is inversely proportional to the wave-length of the light employed for the observation. It would thus seem desirable to employ ultra-violet light in future photographic experiments.

In May and June, 1892, I attempted to photograph the corona with the spectroheliograph of the Kenwood Observatory. The first slit was made rather wide, and the grating set at such an angle as to bring a portion of the ultra-violet of the first order spectrum on to the second slit. The direct light of the sun was prevented from entering the spectroheliograph by means of a diaphragm somewhat larger in diameter than the solar image. Photographs were obtained which resembled the corona, but I greatly doubted whether the images were not of instrumental origin, or due to haze or passing clouds. Appreciating the importance of the question, I decided to construct an instrument for the express purpose of photographing the corona. The work was undertaken in August, but, on account of various delays, it has not yet been completed. The apparatus will be carried on a small equatorial mounting. A silvered glass concave mirror of 6½ inches apertures and 50 inches focus made for this purpose by Mr. Brashear in September, forms an image of the sun on a diaphragm, which excludes all of the direct light of the disc from the spectroheliograph. The latter is similar to the spectroheliograph I now use for photographing the prominences, though a single concave mirror is employed instead of two objectives in the collimator and observing telescope. The apparatus will be tried in Colorado or Arizona during the coming spring or summer, as the low sun and whiteness of the sky make experiments in Chicago useless—at least, during the winter months.[*]

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[*] Communicated by the author.

[†] *Comptes Rendus*, January 23rd, 1893.

[*] Dr. Huggins has kindly presented me with one of his photographs on which the image appears remarkably like the corona.

An apparatus in all respects like that of M. Deslandres' was devised some years ago by Professor Wm. Harkness for the purpose of observing the corona without an eclipse,[†] but it has never been given a practical test.—*Astronomy and Astro-Physics.*

NATURALISTIC PHOTOGRAPHY.[‡]

BY P. H. EMERSON, B.A., M.B. (CANTAB.)

MR. PRESIDENT AND GENTLEMEN,—Two years ago I withdrew my book *Naturalistic Photography*, and I owe you some explanation for so doing. My researches into the subject of vision and perspective drawing were mainly responsible for that act, and if you will bear with me for a little I will endeavour to explain my position.

When I first took up photography I was told by the whole photographic world (including optical experts)—told by all, without exception, that if the photographic observer closed one eye and placed the other eye at the focal distance of the lens used in taking the photograph under observation, he would see the picture "true to nature."

I felt all along that such was *not* the case, and maintained the "sharp" or any other photograph when viewed under such conditions was not true to Nature—to Nature as the *two eyes* see it—and hence arose a long and inky warfare.

Gentlemen, it was in this as in many other disputes—we were both right and we were both wrong.

The opticians were right from the mathematical standpoint, and I was right from the physiological and psychological standpoints, and so it was evident there were two truths in Nature—the perspective or mathematical truth, and the psychological or visual truth. After many practical experiments I found the closest truth to Nature IN PHOTOGRAPHY *(from the physiological point of view)* was to be obtained by throwing the background of the picture out of focus to an extent which did not produce *destruction* of structure—that was my limit; the principal object of the picture being either sharp or just out of the "sharp." This convention I termed the naturalistic method of focussing, and pointed out it had no connection with a general *soft sharpness* such as that produced by Mrs. Cameron's badly corrected "Jamin," or by pinholes, or by throwing the *whole* of the picture out of focus—practices all inferior from the naturalistic standpoint, in my opinion, to my method—which is a deliberate and conscious act to be modified according to circumstances, and no haphazard "dodge" like the "soft sharpness" or "bastard naturalism," as my friend Mr. Balfour calls the more mechanical "soft-sharp" method.

This naturalistic method I practised and advocated and found later on by further research that it was justified by physiology. Well, gentlemen, all this led to a great storm in a tea-cup, and disputes arose as to how we did see with two eyes and what was really *truth to Nature* from the visual standpoint. In the course of this argument I was pleased to find a broad-minded optician taking an interest in these matters. I refer to my friend Mr. Dallmeyer, whose acquaintance I did not make till after the publication of my book, and whose knowledge in practical optics has enabled him to make a lens of my conception (*i.e.*, the tele-photo lens), a lens which to my mind is the most powerful tool yet put into the hands of the decorative photographer, but still a lens that I hope is only a step to a better.

Well, gentlemen, all this argument—though warm at times—did good and set many thinking, and at last I was lucky enough to drop upon the key to the solution, which key I published in April, 1890, in a number of *Photography*. It was a short paper entitled "A Note on Naturalistic Focussing." My friend Mr. Goodall, who has always been interested in the practice of photography, was told by me of this little research, and immediately he took it up enthusiastically and suggested some new proofs and experiments, and together we published the results in a pamphlet entitled "Perspective Drawing and Vision," a pamphlet that created another storm in the tea-cup, but a pamphlet whose propositions, I venture to say, still remain unshaken, though the Royal Astronomer at Sydney was invited to a public argument in the PHOTOGRAPHIC NEWS—a challenge still open to him or any other person of physiological or psychological training; and here I may say Dr. Griffiths and Mr. Sutcliffe were the only two photographers who were acute enough to see and acknowledge in public the force of the pamphlet.

Well, gentlemen, from this pamphlet it was self-evident to me that there is no *absolute* truth to Nature from the visual standpoint, for as each man's sight is different the only absolute truth to Nature for each man is his own view of her (though certain broad features remain true to all). On the other hand, from the mathematical standpoint or perspective drawing standpoint, there is an absolute standard such as the sharp photograph taken with rectilinear and otherwise duly corrected lenses.

Now, gentlemen, I will quote you a paragraph from a text-book on Psychology, published only last year; a passage which shows how this view is now so far accepted that it has entered psychological text-books for students. The quotation is:—

> "Almost all the VISIBLE shapes of things are what we call perspective *distortions.* Square table tops constantly present two acute and two obtuse angles, circles drawn on our wall-papers show like ellipses, &c., and the transitions from one to another of these altering forms are infinite and continual."

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[*] For previous references to this method of photographing the corona without an eclipse, see *Astronomy and Astro-Physics*, November, 1892, p. 792; January, 1893, p. 95; *Photo-Beacon*, February, 1893.

[†] *Bulletin Philosoph. Soc., Washington*, vol. 3, p. 116-119; *Beiblaetter*, vol. 5, p. 128.

[‡] Read before the Photographic Society of Great Britain.

That, gentlemen, is the position. Whence it is evident that NO photograph gives things as we *see them* with our two eyes, though some photographs give results NEARER to what we see than others, and those are the naturalistic photographs.

The next question I put to myself was:—How true must the photograph be, so that it may be considered naturalistic? And this gave me much trouble, but at last I think I can offer the solution, which is—It must be true in fundamentals to the point of *illusion*. Thus a man's boots must not be twice as big as his head, and so on with everything.

So, gentlemen, what I advocate is truth to the point of illusion (for I am not considering to-night scientific photographs, but decorative or pictorial photographs). And I may now say the methods of practice I advised in *Naturalistic Photography* I still advise, and the artists I held up for admiration in that work I still hold up as the best exemplars of their various crafts, but my art philosophy is different as I shall show you to-night, and lastly, I do not consider photography an *art*, but regard it as a mechanical (I say *mechanical* advisedly) process, whose results are sometimes more beautiful than art, but are never art, just as Nature is often more beautiful than art—just as the beautiful Japanese *lilium auratum* surpasses the painted lily—yet is the real lily not art but Nature. So the photograph is not art but a mechanically recorded reflection of Nature. To state this matter more clearly I have adopted a genealogical form of presentation.

NATURE.

(The fountain-head of sensuous impressions, but not necessarily of *ideas*.)

One | branch.

PHOTOGRAPHY.

(A cross between *Nature* and a *machine*.)

Two | branches.

Realism.	*Naturalism.*
(The sharp photograph, wherein sentiment, illusion, and decoration are disregarded; merely a register of bald facts mathematically true.)	(The more or less correct reflection of Nature, wherein truth of sentiment, illusion of truth—so far as possible—and decorations are of first importance.)

From which it is self-evident that I believe there is no true realism nor naturalism in the arts proper, but only in *photography*; for TRUE realism and naturalism are *impersonal*—the results of a mechanical process, which photography logically is, because under the same *physical* conditions the same *results* will always follow. Place the camera under certain physical conditions, and the same results will always follow; which is *not* the case with art, which is *personal*—indeed, the personal element in real art is paramount and all-pervading. Thus art is a cross between *Man* and Nature, or—

ART.

(Cross between Man and Nature—no machine intervening.)

Two | branches.

Impressionism.	*Idealism.*
(Which is a purely *personal* vision of Nature, as thus an impressionist may paint *sharply* or may paint colours wrongly from defect of vision, as does Monet.)	(Cases in which the imagination is used—that is, the combining of several ideals into one harmonious whole. The idealist may transcend *known* Nature, and so the vase is produced.)

In brief what I submit is that all *artists* (who do not use photography, and such are bastards) are either impressionists or idealists, and that logically they *cannot* be either realists or naturalists, for they can never be truly *impersonal*. M. Zola *calls* himself a "naturalist," but he is not. as Mr. Thomas Hardy has pointed out; were I to classify him it would be as a morbid impressionist. On the other hand, M. Viaud, a far more sensitive artist, has been called a "naturalist"; he has publicly denied it, calling himself an "idealist," which he is not—he is an impressionist; morbid too in his way. On the other hand, Theocritus I should call a sane impressionist and Milton an idealist—or, to put it into paint, Mr. Whistler is a sane impressionist and Rossetti an idealist.

And there can be insane impressionists and idealists, as lunacy students know, as well as mediocre, mattoid impressionists, as was the late Richard Jefferies in literature, and (say) Prout in paint.

But still there is a link binding Nature, Art, and Photography together—a touch of kinship—and that is *decoration*. The artist admires Nature when she "sings in harmony," *i.e.*, is *decorative*, he admires the photograph when it "sings in harmony," *i.e.*, is *decorative*; and he admires works of art when they "sing in harmony," *i.e.*, are *decorative*.

Thus photographs must be *decorative* to appeal to artists, but that does not make them *art* any more than Nature is art when she is decorative. In a word, art is the personal expression of a personal vision of Nature or ideal. A decorative photograph is a mechanical reflection of Nature when she "sings in tune," the good photographer requiring to know when Nature does "sing in tune." In a word, he must have true perception of the beautiful to succeed, after that he is merely the starter of a machine.

If you will allow me to disgress for a moment let me here make a reservation. It is that it matters not, for *merely* decorative purposes, what lens be used or how it be used, what exposure be given or how it be given, what developer be used or how it be used, what printing method be adopted or how it be handled, *provided*, always, the result be *decorative*, for no photograph can be said to have any "art qualities" (this does not allow it can be art) without being first of all decorative—a harmonious whole. That is the first quality which differentiates the few photographs from the thousand. But there are higher qualities, degrees of interest and distinction, as it were, and to possess these it must be illusively true, and fine in its *natural* sentiment, as well as decorative ; in a word "naturalistic." And even Mr. Whistler (a far greater artist than philosopher) gives himself away upon this very point in what I years ago called his brilliant but illogical "Ten o'clock," though such an acute critic as Mr. Henley has called this lecture the greatest art writing of the century, which I submit it is not. In this "Ten o'clock" Mr. Whistler advocates throughout his work art for art's sake (*i.e.*, pure decoration) as the be-all and end-all of art. But I submit that he gives his case away when he writes :—

"*As did her high-priest Rembrandt, when he saw* NOBLE DIGNITY *in the Jews' quarter of Amsterdam.*"

Or—

"To the day when she dipped the Spaniard's brush in light and air, and made his people . . . STAND UPON THEIR LEGS, that all nobility and sweetness, *and tenderness and magnificence should be theirs by right.*"

Gentlemen, "noble dignity," "tenderness," &c., have *nothing* necessarily to do with decoration, but they are the ALL-ESSENTIAL qualities for fineness of sentiment in the pictures cited.

It was on this very point that our greatest poet, Mr. Swinburne, fell foul of Mr. Whistler and got worsted. I venture to think that, had Mr. Swinburne merely quoted these and similar passages, his position would have been invulnerable, but he must "write." Indeed, truth of sentiment and fineness of sentiment are distinctly advocated as virtues in these passages and as I have always claimed them to be, and so what becomes of *l'art pour l'art* theory and the nonsense that "subject" has nothing to do with it ? I have always maintained "subject" is as necessary as decoration for the perfect work, and I still maintain it ; but the incompetent misunderstand "subject"—confounding it with "story-telling."

What is wanted in naturalism is a decorative illusion of Nature, a decoration embodying some fine and true *natural* sentiment, the decoration without the sentiment (not sentimentality) is a mere sensuous patchwork of colour, the sentiment without the decoration is mere "literature in the flat," and the truthful illusion without either sentiment or decoration is a mere statement of fact, which explains why Mr. Whistler's masterly "Carlyle" must always be of more *interest* than (say) a "still-life" picture by the same hand.

This may be a fitting place to insert a warning against an error born of misunderstanding. It has been said many times that by-and-by photographers will do works of art when they get "soul" into their photographs ; this and all sorts of pretentious rubbish has been written by third-rate painters and second-rate photographers. Gentlemen, the photograph that is fine in sentiment and decoration and true to illusion can never be *improved upon*, any more than can the statue of the Venus of Melos. A perfect work is good for all time, as Mr. Whistler has said. Means are now at the command of photographers to produce the perfect black and white photographic work, though in future increased *facilities* for producing such work may be found by inventors.

(*To be continued.*)

A CYCLIST'S CHANGING LANTERN.

BY CECIL M. HEPWORTH.

CYCLIST photographers know well the inconvenience of being obliged to carry about with them some sort of ruby lantern, by the light of which they can change plates when on tour. An adaptation to my bicycle lamp of the simple triangular lantern which we used to employ in conjunction with a bedroom candle, I have found to answer every purpose satisfactorily, and that is my excuse for bringing it before the readers of the PHOTOGRAPHIC NEWS.

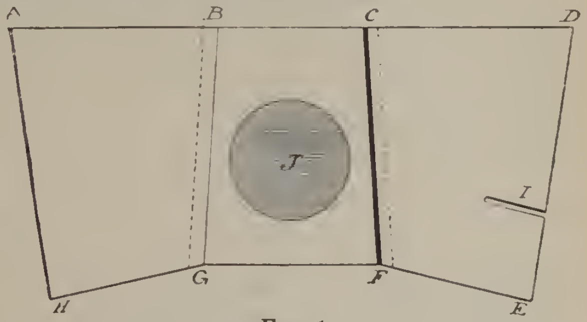

Fig. 1.

It consists of a piece of stout card, cut into the shape shown in Fig. 1, and then divided into three pieces by the lines B G and C F. In the centre portion a hole is cut—round or square, whichever will best suit the lamp in use—and a piece of ruby medium of such a size that it will cover the hole, and extend over the divisions B G and C F on to the next cards, so as to form light-tight hinges. In the case of the hinge, C F, however, the two cards, B C G F and C D F E, are separated by a space of an eighth of an inch, for the reason that when the lantern is folded up for travelling, the right-hand side is folded forward, and the opposite side backward, so that the centre card, with the ruby-covered hole, is protected between the two sides. In the right-hand card a slit I is cut, to receive the nut for raising or lowering the wick. When folded up the little contrivance occupies a space of about three inches square and a quarter of an inch thick, and can, of course, be easily carried in the breast pocket. Fig. 2 shows the card in position, as used when plate-changing is in progress.

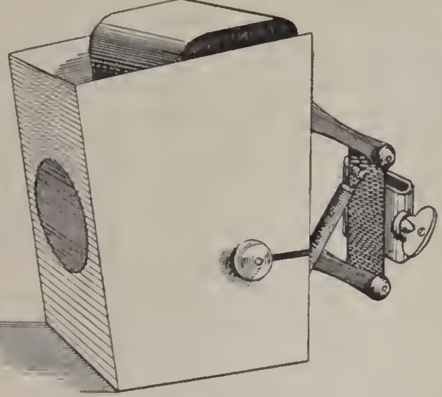

Fig. 2.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, APRIL 21, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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VAN DER WEYDE'S PHOTO-CORRECTOR.

MORE than ordinary interest was aroused by the promises made some months back from Mr. Van der Weyde's photo-corrector. No one knew but Mr. Van der Weyde himself in what this new device consisted, but he was able to show what it would do. This was certainly a wise course for him to pursue as a means of obtaining publicity and bold advertisement, for the device, whatever it might be, was evidently a little out of the ordinary; moreover, it gave the non-technical writer a chance of making those haphazard prophecies and little jokes which are so useful to him, and which are looked for by those for whom he caters. The hopes raised by the photo-corrector reminded us of those which were promised years ago for the phonograph, but we trust that the former instrument will prove more of a reality than the latter, which seems to be just now as extinct as the dodo. Yes, the newspaper scribes had their opportunity with Mr. Van der Weyde's invention, and they took advantage of it. They told us how persons with largely developed nasal organs would have that useful appendage diminished; how large feet and hands could be made small; and how the hydrocephalous subject could have his head reduced to normal proportions.

The examples which Mr. Van der Weyde was able to exhibit proved that the newspaper scribe for once did not exaggerate unduly. Feet and hands brought into painful prominence, and magnified by being purposely brought nearer to the lens than the rest of the subject, were shown, in a companion picture, to be reduced and brought into harmony with the rest of the picture, the change being brought about by this mysterious photo-corrector. Another picture showed how a lady, overburdened with a long court train, to whom nature had denied a stately figure, had been elongated some five or six inches by the same means. Yet another picture—that beautiful group of the Misses Dene, which won distinction for the artist at a recent Pall Mall exhibition—showed how the heads of the ladies, rendered larger than desirable by their forward position, had been diminished with great advantage to artistic effect.

The means by which these curious changes are brought about are very simple, and consists essentially in the employment of a supplementary lens close to the sensitive plate. That lens is adjusted over the spot where the correction is required, its form being such that the rays within its reach are rendered convergent, and the image formed by them is therefore reduced in size. This lens, indeed, may be compared to a hand which grasps a bundle of light rays and squeeees them into smaller space.

The specimen lens which Mr. Van der Weyde handed round for inspection at the Conference, on Thursday evening last, was of home manufacture, and it reminded us at first sight of one of those old-fashioned window-panes with a thickened centre, which are occasionally seen in ancient lattice windows. Much the same result could be brought about by cementing to a plate of glass a plano-convex lens, only that the edges would not be gradually sloped off—like a miniature Primrose Hill—as in the inventor's sample. This gradual shading off is necessary to prevent any indication on the picture that anything unusual has assisted in its production, and it speaks well for the process that even when these pictures are shown as projections by the electric light no trace of manipulation or line of demarcation is visible. We must admit, with Captain Abney, that the invention is most interesting, and that, although it is obviously based on distortion, that distortion is so cleverly hidden that the result is visual truth at least.

The chief difficulty in the general adoption of this invention seems to us to lie in the provision of sufficient lenses of varying shapes and sizes to meet different requirements. Thus, in the case of reducing the size of four heads in a group as already quoted, the supplenentary lens must take the form of a narrow ellipse, everal inches in length. Where a pair of clasped ands have to be operated upon the lens will have to e nearly circular, and possibly not more than one nch across. Feet may require a lens of another size gain; and we can easily imagine a case in which nore than one supplementary lens will have to be mployed in making the needful corrections on one icture. And, let it be noted, directly the portrait-oving portion of the community begin to understand hat these alterations can be made, they will not be low to demand impossibilities at the hands of the hotographer, and he will have to be prepared for all inds of emergencies. Mr. Van der Weyde did not nake it quite clear how he intends to meet this diffiulty, nor did we quite understand the device he roposes to adopt to bring the correcting lens over the xact spot upon the image where the alteration is alled for.

There are those who will regard this invention with ighteous indignation as a thing which encourages vant of truth; but they might condemn any lens on he same ground, for all are liable, under certain conlitions, to produce distorted images. The results rought about by the photo-corrector most certainly ustify its use, and so long as retouching, the printing-n of skies, and other similar practices are allowable in he endeavour to produce the best effects, the supplenentary lens as employed by Mr. Van der Weyde canot with fairness be objected to.

CAMERA CLUB CONFERENCE.

M LEON VIDAL (the Paris correspondent of the Photographic News) contributed to the Conference a paper "On the Influence of Photography on the Vision, and thereby on Works of Art, from the Double Point of View of Drawing and Colouring." In the opening of this paper M. Vidal refers to Mr. Muybridge's pictures, analysing he movements of animals, and the synthesis of such novements which has been later rendered possible y means of Professor Marey's apparatus, and he oints out that these photographs were, in a measure, revelation to artists, and it became a question whether he new and strange attitudes which photographs had evealed should or should not take the place of the more onventional forms which had from time immemorial been ransferred to paper and canvas. The limitation of the ye in its power to appreciate a very quick movement, wing to the phenomenon of persistence of vision upon he retina, were next referred to, and incidentally it was nentioned that Meissonier was so scrupulously concientious in studying the actual movements of a horse, hat the animal was caused to gallop at the side of a arriage, from the window of which the painter made his observations. The benefit obtained in this manner may be realised when we look at his study of cavalry charging in his famous picture, entitled "A.D. 1807." Meissonier was so much impressed by Muybridge's photographs that at the time the Californian photographer visited Paris they became friends, and it was actually arranged that they should publish a joint volume, of which the famous artist was to furnish the text and the photographer the illustrations. But when Meissonier began to compare Nature's transcripts with his own work, he found that the latter left so much to be desired that the scheme fell through, and Muybridge returned to London and published his book unaided by Meissonier.

The photographs of a galloping horse taken in ten consecutive exposures at short intervals show that when the animal is off the ground his legs are not spread abroad in the conventional manner adopted by artists, but that they are all "bunched up" beneath the belly, and one French artist following the photograph has, in a recent picture, actually depicted them in the latter position. Was he right in adopting this ugly attitude, which is displeasing to the eye, because it is strange, and, as we should say, unnatural? It is also ungraceful. Taking the case of a moving vehicle, the artist can only express such movements by blurring the spokes of the wheel; but were he to go beyond this and represent the wheel as an instantaneous photograph renders it, he would go beyond the limit of the capability of normal human vision, and would defeat his own object. The wheel would appear as if stationary, with every spoke clearly defined. Marey replied to the objections thus stated by expressing the opinion that by help of these photographs the eye would become better educated, and would learn to see movements which were before hidden from it. The writer of the paper agreed with Marey, and believes that he has so far improved his visual capacity as to see movements which he would not otherwise have appreciated. But, at the same time, he does not think that this improved power of vision should become a factor in art matters. Photography should be our guide in an analytical study of the successive phases of motion; but we should not choose among these movements those which the eye cannot ordinarily appreciate. What is scientifically true may be artistically false, so that it is quite within reason to reproduce invisible stars; but we must not confuse artistic truth with scientific fact. In conclusion, M. Vidal stated that, although we now know these movements as recorded by photography to actually exist, we must not be tempted to reproduce them artistically on the pretext of realism, rather must we be guided by the impressions afforded by normal vision. Photography renders aids to art of the highest value; but we must not seek too much, and a school taking inspiration from instantaneous photography would follow a route which did not lead to true art.

The New or Impressionist Art and Photography, was the title of a paper by Mr. Hume Nesbit, who may be congratulated on having contributed to the Conference one of the most amusing and interesting items which were brought under its notice. And not only was the paper amusing, but it was full of valuable hints, and, therefore, gave its hearers something to ponder over. In interpreting Nature, Mr. Nesbit tells us, the artist is sure to infuse into his work some of his own personality. If he be noble, sympathetic, and generous, then he will describe on his canvas something which reflects these qualities; if he be a humanitarian, his works will tend to raise humanity, to encourage feelings of pity and charity; and if he be religious, his religion will show itself through his handiwork. But if he lacks these higher qualities, his work will suffer from their absence, and beyond mechanical correctness of form and artistic instinct of colour—which will serve to exhibit his manual dexterity and education—his pictures will be common-place and lifeless. This applies not only to painters, but to authors; indeed, to every other kind of work. The man who is not very much in earnest with what he takes in hand, but just lets his ideas filter carelessly through his brain, may meet with admiration as a clever impressionist; but all the same, he must be regarded as a failure, and the artistic value of his work is *nil*. Mr. Nesbit then proceeded to criticise in severe terms a picture exhibited in the Grafton Street Gallery, and entitled "L'Absinthe," by Degas. This picture, it will be remembered, represents a man and a woman sitting in a restaurant with glasses before them, the contents of which give the work its title. Mr. Nesbit described this picture as being a bare and very uninteresting subject, even if it had been painted instead of being only rubbed in. Yet the new art school critic has written hysterically about its hidden merits, and points it out as an example of the correct way to make pictures. The English people are so hospitable towards strangers that they go into ecstacies over the obscure and bald ravings of an impostor like Ibsen, or howl with admiration over the paint splashes of a Degas, and laud such works as if they were greater than the works of past masters of literature and painting. (Mr. Nesbit at this point left the subject of impressionist painting, and spoke of certain recent doings of the Scottish Academy, which he held up to reprobation.) He then came back to his former topic, and warned photographers against allowing their art work and inspirations to be injured by a study of such an one as Degas. He pointed out that he (Mr. Nesbit) had in his books said much about the union of the artist with the photographer, so much so that he has been christened by some of the cynical critics as "the impressioned photographer." But when he cautions his hearers against being led away by the very modern amateur impressionists with their foolish affectations, they must remember that there are impressionists such as Whistler, who can help them if they carefully study the suggestiveness, action, and refined naturalism exhibited in their works. But if his hearers wanted to come down to the level of the young school of the so-called impressionists, they can easily do so by the following method:—Get the worst plate to be had, put the sitter in the most ungainly position, unlearning all you have ever learnt of pictorial composition; encourage your sitter to move about as much as possible while you over-expose the plate, bother as little as you can about development, print the negative as hard as you can in blazing sunlight—that is the way to become an impressionist photographer. Mr. Nesbit brought his paper to a close by acknowledging that photography had taught painters a great deal that was hidden from them, the true motion of the waves for instance, and he trusted that the happy union of the painter and the photographer would long continue, and, like good whiskey, grow mellower as the years roll on.

The paper led to a short but animated discussion, in which Mr. Briant spoke on behalf of the impressionists, while others were in opposition. At the suggestion of Mr. George Davison, the reader of the paper then undertook to produce an "impressionist" painting before the assembled company—a suggestion which had evidently been anticipated, for Mr. Nesbit had ready oil colours and palette, an easel and a sheet of grey tinted academy-board, upon which he now commenced to make his sketch. He worked very rapidly, and the picture was completed in five minutes. No one in the room could possibly guess its meaning, for it had as yet no title, and this fact alone will prove to our readers how true to the modern school of impressionism it must have been. It might have represented a shepherd waving his arms at the summit of Primrose Hill, or a scarecrow, or a tree, or anything else, but its author described it as "a purple thrill in three gasps"—adding, amid the laughter of his hearers, "Look at it long enough, and I daresay that it will come out something or the other."

It was certainly rather rough upon Mr. Rowland Briant that his paper should come immediately after that of such an opponent of impressionism as Mr. Nesbit; for Mr. Briant is an apostle of impressionism, and had just been combating Mr. Nesbit's conclusions. Even in the very opening of his paper, Mr. Briant showed in which direction his sympathies went, for he claimed that every means of producing a picture is fair, and that some kind of softening of focus or breadth of treatment is desirable, and that the extent of the absence of definition permissible is a matter for individual choice. We must, however, for want of space, reserve a full consideration of Mr. Briant's interesting paper for a future occasion.

CAMERA CLUB ANNUAL DINNER.

The members of the Club dined together according to custom, on the evening of the first day of the Conference, at "The Monaco," Captain Abney in the chair. A large number of distinguished strangers were their guests, and the enjoyment of the evening was added to by songs and recitations. The toasts given were "The Queen and Royal Family," "The Camera Club," "The Visitors," and "The Photographic Press," the latter being represented by Mr. Traill Taylor, Mr. T. C. Hepworth, Mr. E. J. Wall, and Mr. Sturmey.

But the chief event of the evening was the presentation to Mr. Ferrero and to Mr. Greene of testimonials in recognition of the services they had for so many years rendered to the Club. These souvenirs took the form in the first case of a half-chronometer, and in the second of a silver tea and coffee service. In making the formal presentation, Captain Abney said that it now fell to his lot to perform a very pleasant office. The Camera Club had long had the advantage of numbering among its members two gentlemen who had been of inestimable service to it

—Mr. Ferrero and Mr. Greene ; and the members had ong thought that the value of these services deserved ome recognition at their hands. Mr. Ferrero, as honoary managing director of the company, had given his vhole time—no one but a civil servant knows what that neans—(laughter)—and had given it most ungrudgingly n their interests. And this gift of so much time usually arries a pension with it ; but the only pension in this ase is the unbounded gratitude of the Club. Mr. Ferrero ias most diligently watched over the welfare of the Club, ind has kept a constant eye upon its finances. He has een, if anything, *over*-prompt in the collection of the Club subscriptions. He had given daily service to the Club, and had shown a marvellous amount of energy and ousiness aptitude in the work combined with what he night call a pleasing sympathy. It was always a pleasant natter to deal with him, and he personally owed him a lebt of gratitude, for he had often relieved the president f some of his duties. As for Mr. Greene he, too, had een a strong supporter of the Club, and had always been eady with advice, and this did not mean nothing, for it vas legal advice. Freely and lovingly he had acted in his way in the interests of the Club, and had saved it from many difficulties and expenses. We must remember, too, that Mr. Greene is in the habit of mounting the rostrum and acting as lantern operator—very often having to show most indifferent slides—the president's among the number. His legal aid was simply invaluable, and much of the prosperity of the Club was due to his advice. Both Mr. Ferrero and Mr. Greene he thanked most heartily in the name of the Club for their valuable labours in its interests, and it was most pleasant to be the mouthpiece of the members upon such an occasion. On the table before him were certain small presents which, although they were not by any means adequate to the amount of labour which these gentlemen had expended in their interests, would, he hoped, be looked upon by the recipients as tokens of their sincere and affectionate regard. Gratitude, it is well known, sometimes took the form of a sense of favours to come, and while again thanking these two members of their body for past services, he trusted that for many years they would be associated with the Camera Club.

Messrs. Ferrero and Greene responded in a few appropriate words.

The company did not separate until a late hour, after having spent a very pleasant evening.

THE BOLTON PHOTOGRAPHIC SOCIETY'S EXHIBITION.

ON Wednesday evening the Bolton Photographic Society opened an exhibition in the Public Sale Rooms, Bowker's Row. As no fewer than 233 exhibits have been catalogued there is sufficient variety in the collection to make it one of considerable interest to visitors, who being uninitiated in the technicalities of photography inspect it merely from the standpoint of a pictorial display. The extent of the exhibition naturally admits of varied quality as well as diversity of processes, and considering this it is highly creditable to the Society that so uniform a standard of excellence should permeate the exhibition. It was stipulated that at least six photos should be exhibited by every competitor, and hence a fair insight was afforded into the capabilities of each. Mr. J. R. Bridson, J.P., the President of the Society, had for exhibition over a dozen fine pictures, including portraits of Princess May, Miss Bridson, Miss Fortescue, and various landscapes, some of which were worked up in colour and crayon. In portraiture there was a very fair representation of professional artists in the town, some highly finished work being exhibited by Mr. Nathan S. Kay, Mr. F. Proctor, and Messrs. Weatherley Bros., whilst Mr. H. Birtwistle was also an exhibitor in this class. Mr. J. S. Roscoe, a skilled amateur, had several landscapes on view, and also worthy of special mention in the miscellaneous exhibits were Messrs. Walter Staton, W. Collier, W. L. Entwistle, H. Haywood, J. Kellett, W. Green, and A. Harper. The Eastman Company had on exhibition eight views as specimens of their bromide and solio processes ; and an exhibit, which was the commanding attraction in the room, was Messrs. Elliott & Sons' green carbon enlargement, which attracted great attention at the Pall Mall Exhibition last year. There was a very large attendance at the opening ceremony, including Mr. J. R. Bridson, Drs. Johnston, McKechnie and Barr, Mr. J. P. Haslam, J.P., C.C., Councillor J. T. Cooper, and Messrs. J. Fearnley, C. K. Dalton (Hon. Sec.), E. N. Ashworth, J. Boothroyd, and J. E. Austwick (Secretary to the Exhibition Committee).

NATIONAL PHOTOGRAPHIC EXHIBITION, 1893—CRYSTAL PALACE.

LIST OF AWARDS.

Judges.

Valentine Blanchard, Edgar G. Lee, James Stanley Little, Peter Macnab, F. Mason Good, Francis Powell, Frederick York, Richard Keene, William Lang, jun., J. P. Gibson, Dr. G. Lindsay Johnson, Leslie Thomson, H. L. Noel-Cox, Andrew Pringle, and J. P. Slingsby Roberts.

National Challenge Cup.

The West London Photographic Society.

Gold Medal—Alcove No. 1 : W. M. Warneuke.

Silver Medal—Alcove No. 18 : E. T. F. Goodwin.

Bronze Medal—Alcove No. 3 : Messrs. Morgan and Kidd.

Bronze Medal—Screen No. 16 : A. R. Dresser.

Art Division.

Silver Medals—William Howell, No. 281 ; C. H. Oakden, Nos. 247, 275, 276, and 277 ; W. J. Wright, No. 384 ; J. E. Goold, Nos. 402 to 412 ; C. Job, for General Exhibit ; E. Hawkins, No. 282 ; G. Hankins, for General Exhibit ; Miss A. Heath, No. 664 (Special for Ladies' Work).

Bronze Medals.—F. W. Edwards, Nos. 249 and 251; G. H. Catt, Nos. 429 and 430; and R. H. Lord, No. 483.

Certificates.—Douglas Pym, No. 629; E. M. Stone, No. 713; and C. Court Cole, No. 722.

Scientific Photographs.

Silver Medal.—Sir Henry E. Roscoe, F.R.S., D.C.L., LL.D., and Joseph Lunt, B.Sc., F.C.S. (joint exhibit).

Bronze Medal.—John Carpenter.

Lantern Slide Division.

Professional Photographers (Sets of Forty-eight Slides).

Silver Medal.—George E. Thomson.

Bronze Medal.—P. H. Fincham.

Amateur Photographers.

Class 1.—Silver Medal, F. Golby; Bronze Medals, J. Shaw and G. Bingley; Certificate, Harry Holt.

Class 2.—Silver Medal, W. E. Cowan; Bronze Medal, J. O. Grant; Certificate, W. Taverner.

Class 3.—Bronze Medal, W. C. Beetham.

Class 4.—Silver Medal, F. Anyon; Bronze Medal, E. Dockree.

S. G. Buchanan Wollaston, } *Executive.*
Charles W. Hastings,

April 15th, 1893.

A CAMERA TRIP IN GREAT BRITAIN.

BY CATHARINE WEED BARNES.

RETURNING to London for a day, after our Canterbury visit, we then turned our faces northward, our objective point being the Photographic Convention to meet in Edinburgh, though our plan was to make several stops *en route*. Passing by many interesting places, we reached Peterborough late the same afternoon to find some local fair in progress, and the large hotel crowded; so that we were fortunate to find a tiny room in a small one for the night. As it was too late an hour for camera work, we rambled about the town, spending most of our time in the cathedral, which I had last seen, in all the chaos of restoration, eight years before, and in the beautiful close, eulogised by Hawthorne. After an early breakfast next day, we went on to Lincoln, only a short distance, and found more comfortable quarters. Luncheon over, we started with some friends, one, the well-known photographer, Robert Slingsby, and—my camera—to find what we, or rather the lens, could see in the interesting city. Lincoln, or at least a great part of it, is built on a hill, and if it always is so windy as when we were there, I should think houses and all would have to rest on very secure foundations. The Cathedral and Castle are on what Tennyson might call "the crown and top of things"; it is well named "Steep Hill," and the former is stately enough to impress the most critical eyes. A drive about town and far beyond the suburbs, where I tested my Dallmeyer tele-photo lens, brought us to evening, and the day ended by a flashlight sitting in Mr. Slingsby's studio, where I was favoured by seeing him develop his exposures. The following morning we drove to the Castle, took some views of it and the Cathedral from the Castle wall, and one or two bits in the town before turning backward for a few hours to Derby, where I had been asked to visit the car works of the Midland Railway. I should mention that the wind at Lincoln had brought wreck and confusion to my beloved camera, which was swept to the ground by a small tornado—fortunately, as my work there was practically finished. Only the main entrance of the Cathedral and the oldest part, dating from the twelfth century, is shown in this article, the general view not proving clear enough for reproduction, owing to obscuration from smoke.

This Cathedral is one of the very few in England which retains the original stained-glass windows, and it also possesses the famous bell, "Great Tom." The exterior of the building is said to illustrate every portion of English architecture, and now that a wide space has been cleared by tearing down a number of worthless structures, its stately beauty can be seen to fine advantage. Facing the western front is the Exchequer Gate, built in the time of Edward III. Lincoln was the Roman station Lindum, and its founders connected the Witham, which flows under its walls, with the Trent, by a canal still existent. The town is full of curious treasures for the camera, but, as in so many other cases, we had recourse to the well-worn hope of doing them "next time." With memories of the Conqueror, King Stephen, the Empress Maud, and a host of other celebrities claiming attention, we managed at last to tear ourselves away. Our stay in Derby was but for a day, and by the courtesy of the manager of the Midland Railway we were escorted over most of the immense space covered by their works, returning at a later day to complete our sight-seeing. All of the different parts of engines and carriages, as the English call the cars, are made here, and the workmen have eating-rooms, library, and numerous other comforts. It is a city within a city. As is often the case in England, this railroad company owns and manages a number of excellent station hotels, which I can most unhesitatingly recommend to tourists, especially ladies travelling, as we two did, alone. The Derby visit closed by a most enjoyable call on Mr. Thomas Scotton, official photographer of the company, and he kindly invited me into his innermost sanctum, where, among other experiments, he was working the cold bath platinotype process. His courtesy was further shown on a later visit, when he and his son went with me to Matlock Bath, where, although the day was rainy, we secured some excellent views. Derby is, perhaps, the best point from which to reach Haddon Hall, Chatsworth, Hardwicke Hall, Winfield Manor, and other historic, picturesque places, besides the Peak district and the lovely dales of Derbyshire. Many of these points we visited later in the summer.

From Derby we went to Leeds, where we were hospitably entertained in the family of one of the professors of the Yorkshire College of Science, and had the privilege of meeting one of the pioneers of photography in England, Mr. Washington Teasdale, as earnest and enthusiastic as the youngest amateur camerist. Rain prevented our securing any views in the beautiful Bolton Woods and

long the Wharfe, but a few were secured on a subse-
uent visit. We joined at Leeds a party of delegates for
ie Edinburgh Convention; but will leave Scotland until
later article, and describe our experiences at York and
'ountains Abbey, although they do not come in regular
quence.

(*To be continued.*)

PATENT INTELLIGENCE.

ompiled for the Photographic News *by the Patent De-
partment of Messrs. Herbert, Haddan & Co., of* 18, *Buck-
ingham Street, Strand, London, W.C.*

Applications for Letters Patent.

,931. Alfred Charles Jackson, 97, Newgate Street, London, "An Improved Mask with Border for Photographic Purposes."—*4th April*, 1893.

.061. William Tylar, 41, High Street, Aston, Birmingham, "Improvements in Photographic Draining Racks, whereby several sizes of plates can be accommodated together or separately."—*6th April*, 1893.

.231. James Cheney, Cedar Villa, Mackenzie Road, Beckenham, Kent, "Cheney's Retouching Apparatus or Retouching Machine for Retouching and Stippling Photographic Negatives and other Pictures."—*8th April*, 1893.

.281. Eugen Albert, 45, Southampton Buildings, Chancery Lane, London, "Improvements relating to the Production of Negatives."—*8th April*, 1893.

CORRESPONDENCE.

MULTIPLE FILMS.

Sir,—Although Mr. Pringle has confined his reply to my letter of the 17th ult. to another journal, I think the matter of such universal interest that it should get directly into the hands of your readers, and so you will oblige me by inserting the following contribution to it.

I hasten to reciprocate Mr. Pringle's kindly feelings. Mr. Pringle has been a friend to ourselves, speaking for my company, and to myself, and trust he may ever remain so: but there happens sometimes in human experience a period when it is well to be saved from one's friends, and this I have taken to be one of those interesting occasions.

Mr. Pringle expresses regret that I did not attend at the meeting of the Camera Club: well, I thought the matter was so simple, that in the hands of such an expert the subject was quite safe. Secondly, I disliked the appearance of "exploiting" at scientific meetings; and lastly, I did not think it consistent with my *amour propre*, inasmuch as I had some time previously been advised by Mr. Pringle that I should not be considered eligible for that Club membership.

Of the first idea I have been altogether disabused, and it is entirely due to Mr. Pringle's handling of the subject that it has been thought desirable to give instruction in the uses and capabilities of the plates by demonstration at the societies.

Mr. Pringle seems to wish to represent my former letter as dealing mainly with opinions; nothing is further from my desire. I want facts and facts only: and I maintain the facts of the case are so easy of proof as to be within the reach of all

Mr. Pringle objects to my use of the adjective "preposterous." I can only repeat that the idea of stripping the films in practical negative-making is preposterous; and consider I was justified in being so emphatic on the point when a gentleman, Mr. Gregor Grant, who admittedly had received instruction from Mr. Pringle on the proper use of the plates, previous to starting on a trip, is reported to have said at a meeting of the West Kent Society that he gave enormous exposure, developed and stripped off the top film; but I understand, even then, nine good negatives were secured out of twelve, the remaining three being under-exposed. I take it the latter were the cause of Mr. Grant adopting Mr. Pringle's notion, that a little over-exposure produced a failure with the plates.

In discussing the question of rapidity I contend I am entitled to have from Mr. Pringle some suggestions as to why he should go out of his way to represent the plates as slow, in order to release him from any suspicion of being disingenuous; either he must imagine I cannot make a fast emulsion, or must have an idea that the successive coatings interfere with one another.

Mr. Pringle must surely know there is every inducement to put the most rapid emulsion on the surface: for with the increase of rapidity, halation is increasingly troublesome in the single film. As a matter of fact the plates are as rapid as any plate of any make I have ever tested, and I am more than sanguine of soon being able to provide a plate of much greater rapidity still.

Mr. Pringle's assertion at the Camera Club, "I found that in a view with trees in it the normal exposure to get a good negative on the top film was ten seconds at $f/32$," if unaccompanied by an extempore explanation, was an outrage. I will here point out that the questionable advantage possessed by the ordinary plate of the supplementary exposure from reflection (which I maintain is stupidly called "halation") is absent. Why I think the term "halation" stupid is, because it detracts attention from the undue density and what may be called the inner effect of the reflected rays when not sufficiently strong, or the angle of reflection is not large enough to produce the halo.

Mr. Pringle in his use of the adjective "absurd," in connection with my assertion as to the practically unlimited latitude of the plates, is, I submit, somewhat unscientific.

If it is possible to do as I have done, give an exposure on an open landscape of half a second, and another of one hour, with the same stop (and in all probability six hours would have answered equally), is my claim unjustified? I should be glad to know who requires greater latitude! Mr. Pringle says he has not found the plates an absolute cure for halation. I shall esteem it a great favour if he will furnish me with details of the alleged failure, and will guarantee, if the exposure is within the province of what can be fairly described as practical photography, to make a negative free from it.

On the question of quantity of light passing a film, Mr. Pringle appears to give himself entirely away, or I cannot understand his language. He says, "I think under-exposure is one of the most certain ways to produce halation." Now, taking it for granted that the halation meant is reflection, and as the reflected rays are only a small percentage of the transmitted, it stands to reason that a large quantity of light has passed the film even in the cases of under-exposure. Then, am I right or wrong in claiming a great advantage for the double films in cases where one wishes to develop up all that is possible?

Now, on the question of amenability to development, I have not the advantage of a knowledge of the results obtained by the savants referred to, as having "studied the subject."

It has been a matter of daily—almost hourly—study to me for the past fourteen years, and this is the only way I can account for the fact that a weaker developer is necessary for a slow plate than for a rapid one; and also for another fact, that a weak and restrained developer with a rapid plate will furnish a finer grained negative than a strong one. Why this, unless it is that the finer grains are more easily reduced? This, in my opinion, also furnishes the correct answer to the Rev. F. C. Lambert's question, as to the appearance or non-appearance of the positive effect in negatives, propounded at the Camera Club on the same evening. Mr. Pringle, I expect, will agree with me that light and heat are only different manifestations of the same natural phenomenon. Now, in sensitising an emulsion, heat is as necessary as light is in making a negative. We know the effect of light is up to a certain point to facilitate or render possible the development to maximum density; beyond that point it renders it more and more difficult, and at last it makes development by any known method an utter impossibility; in other words, the salt of silver is what is termed perfectly solarised. Then I suggest, the action of light and heat being similar, that in the more highly sensitised emulsions we have an approach to the effects of solarisation, and consequently density is less easy of achievement, as it is well known to be with the most rapid emulsions.

I can assure Mr. Pringle there are many items to be found in the philosophy of a dry-plate maker which are not to be found in the philosophies of the majority of our handbooks, neither is it fair to expect it. We, as emulsion makers, make thousands of gallons of emulsion of different kinds during the year, whereas our authors may make their few half-pints.

In conclusion I can only beg of Mr. Pringle not to fail to pay a visit to the Exhibition which is being held during next week at 24, Regent Street. If he cannot there find that I have more than proved my case to the hilt I shall be surprised. J. T. Sandell.

Thornton Heath, April 10th.

NEW PROCESSES.

Sir,—I have been much interested in reading the able article contributed to the Photographic News, of March 30th, by Mr. H. P. Robinson. Among professional photographers the most talked about subject of the day is, What shall we introduce to draw the public? I am pleased to see such a subject ventilated, for as everybody knows business has reached a very low ebb indeed. There was a time when a "knight of the camera," even a humble one, was never short of a few pounds in his pocket; he had only to dip his hand in, and presto! it was there! I fancy I hear voices pitched in a doleful strain say, "When?" but it must be understood I am not endeavouring to whet the appetites of those knights of a season or even of ten seasons, who while reading this will stop and think, "Why was I not there?" I allude to those palmy days when the wet plate was in the height of its fame, when a case of photographs would attract attention; and, yes, cause people to cross the way to look at them with eager eyes even if they hung down a back street.

It will have to be something uncommonly good to attract attention nowadays, even if put under their noses. It's all very well to flatter yourself you are doing a business, start as early as you like in the morning and leave off the last thing at night, and when you have finished, and you think to yourself you have earned a good day's wages, you cautiously approach the mouth of your pocket, and with a rush down goes your hand, and presto! there's very little there! Such it is now, such it has been a long time, and I among others welcome anybody and everything that will show me how to improve things. Yes, the cartes were good, very good, but they are good no longer. The gems (horror of hounds) were good to a few, but not for long. Then came chromotypes, which were cartes in another form, but nothing has taken on. Cabinets are practically the only photographs selling. I saw a short time ago staring at me from a chemist's window some statuesque photographic reproductions; above them was the word "Challenge," and underneath, "Which is the best process?" As far as I could make out, the editor of some paper was endeavouring to draw attention to the productions done by the method used some years ago, and some done by G. B. Bradshaw & Co.'s newly patented process. Now, from my point of view, it was scarcely necessary to ask the question, "Which was the best?" the answer being plain to the merest tyro; whereas those done by G. B. Bradshaw & Co.'s process were thoroughly artistic and perfectly natural; the one done by the other method appeared to me very much like a stiff wooden doll, without a particle of artistic effect about it. If that was the effect wished for, and for which the question was asked by the editor of the paper in question, why the one done by the old method would win easily. I took it to be a photographic joke at first, but one never knows. Seriously, I think there is some grit in this process of G. B. Bradshaw & Co.'s. I should like to see it taken up by one or two prominent firms; if it did become the rage, there is no question about its lasting. There's money in it, and I for one would soon follow. Practical.

* * *

PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

Technical Meeting, April 25th.

The Manufacture of Gelatine Plates. A demonstration by Mr. J. Desire England, at 8 p.m.

London and Provincial Photographic Association.

April 13th.—Mr. T. A. Freshwater in the Chair.

A paper on platinum toning as applied to gelatino-chloride prints was read by Mr. Lorimer, in continuation of his recent observations and experiments, called forth by a statement that prints on this paper are not susceptible to platinum toning. In the experiments, the results of which were now shown, the exposures had been made by printing through an opening in an opaque mask. The paper, after fixing, gave the following results:—A portion that had not been toned was treated with a solution of bichloride of mercury, and was completely bleached; a similarly printed piece, but one which before fixing had been thoroughly toned with gold, resisted the mercury solution so well that no bleaching action could be detected; a third piece, which had been toned by a platinous salt in acid solution, was about half bleached out. When half-tone prints were treated in the like way, similar results followed. The toning appeared to have acted with great regularity, as the gradations emained, the whole print being weakened merely. The latinum-toned print lost more in a solution of cyanide of otassium than in the mercury solution. The general con-lusion is that gelatine prints are amenable to platinum oning, a conclusion which Mr. Haddon endorsed as now stablished.

Mr. J. T. **Teape** produced some experimental plates to show hat halation was possible on multiple-coated plates, although ot with an exposure that would suffice to produce it on an rdinary plate, yet with less than would be required for a acked plate. He also found that slow development, as ecommended by Mr. Long, did not prevent or modify alation.

Mr. F. A. **Bridge** thought that any plate would give alation if the exposure were sufficiently prolonged.

Mr. **Beckett** said that even backing is only partially effec-ive, although in most cases it was quite sufficient.

Mr. P. **Everitt** raised the question as to whether a thin coating on a plate did not shorten the scale of gradation.

Mr. A. **Cowan** thought it would be unreasonable to expect anything but a short scale when the coating and sensitive material is thin.

West London Photographic Society.

On the 11th inst. Mr. W. S. **Rogers**, the Hon. Sec. of this Society, gave a practical demonstration in "Frame-making." He explained the method of cutting the mitre-joints, and showed how the four sections of moulding could be readily glued up to form a picture frame. Mr. Rogers employed for the purpose of his demonstration a bench by Messrs. Syer & Co., and he exhibited and explained a very ingenious mitre-cutting machine by Messrs. Booth Bros., both of which had been lent for the occasion.

Afterwards a series of slides by Mr. H. **Selby**, illustrating a tour in the counties of Durham and Yorkshire, were put through the lantern, and Mr. Selby gave an interesting discursive lecture on the places represented.

Hackney Photographic Society.

Mr. E. Puttock in the Chair.

The Hon. Sec. (Mr. W. Fenton Jones) was welcomed back by the members after his tour through Italy and Switzerland, and he informed them he would give an account of his trip later on in the year, with slides from negatives taken by him.

From the question box: What is the cause of a negative turning pink?

A suggestion was that the hypo had not been eliminated sufficiently.

Mr. **Beckett** showed a table showing loss of reflection from polished glass plate (lent him by Mr. Wall).

Messrs. **Sodeau** and **Smith** showed comparative tests on unbacked, backed, and Sandell plates. On the backed and Sandell plates there was hardly any halation; but the unbacked one had much halation.

Other work was shown by Messrs. Salmon, Roofe, Richardson, and Hudson. After which lantern slides, the work of Messrs. Roofe, Roder, Carpenter, Wire, Barker, Barton, Dean, Salmon, Cross, Olney, Harvey, Hudson, and Beckett, were shown.

North Middlesex Photographic Society.

The fourth of the series of elementary technical classes being given by the above Society was held on Wednesday, the 12th inst., when Mr. J. C. S. **Mummery** gave practical instruction in toning gelatino-chloride paper, both with the combined and with the separate baths.

May 10th has been fixed for the next evening, when will be demonstrated "The Improvement of Negatives (Intensification and Reduction)," by Mr. J. **McIntosh**. The Secretary (Mr. G. Gosling, 13, Lausanne Road, Hornsey) will be pleased to hear from any gentlemen wishing to attend.

Liverpool Amateur Photographic Association.

A reception and afternoon tea was given by a few of the ladies of the Association on Thursday, the 13th inst., and a large number of the members and their friends attended as visitors, the arrangements being in the able hands of Mrs. Marriott, Miss Adams, Mrs. Morrison, and Mrs. Southell. The club-rooms had quite a holiday appearance, and were decorated with flowers, &c. In the evening a practical demonstration on "Alpha and Bromide Paper" was given by Mr. **Wilkinson**, of Manchester. He also exhibited and gave the formula for a home-sensitised print-out paper.

Newcastle-on-Tyne and Northern Counties Photographic Association.

The monthly meeting was held on Tuesday, the 11th, Mr. H. G. **Ridgway**, Vice-President, in the Chair.—The outdoor meetings were fixed as follows:—May, Stawart-le-Pele; June, Fountains Abbey; July, Richmond; August, Alnwick; September, Seaton Sluice and Seaton Delaval.

Mr. W. **Parry** read a paper on "Retouching," and a discussion followed.

The formation of a photographic library is under way, and progress was reported.

Social Meeting, Tuesday, April 25th, at 7.30 *p.m.*

The lantern will be in use, and all members are asked to bring slides—preferably not more than six. Members are also invited to bring prints, or any other objects likely to be of interest. The formation of a library is making progress. A bookcase has been presented to the Association, and gifts of books on photographic and cognate subjects are solicited.

Leicester and Leicestershire Photographic Society.

A meeting of the Society was held in the Library, Old Town Hall, on Thursday, the 8th inst., Mr. J. **Porritt**, President, in the chair. The minutes of the last meeting were read. Three members were balloted for and elected, and four proposed for ballot at next meeting.

The **President** placed before the meeting the particulars and results of the Society's late exhibition, which was a pronounced success; and, on the motion of the **Hon. Sec.**, seconded by Mr. **Geo. Bankart**, a vote of thanks was heartily accorded to Miss H. M. Porritt for her valuable services as Exhibition Secretary.

The Plymouth Convention slides were then passed through the lantern.

Rotherham Photographic Society.

Monthly Meeting, April 11th.—Dr. **Baldwin** (President) in the Chair.

Good attendance. Three new members elected. Mr. **Leadbeater** (Treasurer), in a paper on hand cameras, considered such apparatus as the premier plate spoiler, and said he should like information as to the proportion of really good negatives out of total plates exposed. When understood, the hand camera was a most interesting and enjoyable companion, and had been one of the best advertisers of modern photography. Hints on construction and use of hand cameras, and also on plate and film development, were given. The *Photography*, 1892, hand camera pictures were on view.

Ashton-under-Lyne Photographic Society.

On Thursday evening, April 13th, this Society had an exhibition of lantern slides made by some of the members. There was a good attendance, and a large number of slides were thrown on the screen by the Hon. Sec., Mr. Robt. T. Marsland.

At the close a hearty vote of thanks was given to Chas. Lord, Esq., for his present to the Society of a framed 20 by 14 enlargement of one of his Swiss views.

The President was unable to attend in consequence of the death of his sister, for which the members expressed their sorrow. Mr. W. H. George presided in his absence.

Summer Rambles, 1893.—The first ramble of the season will take place on Saturday, April 22nd, to Marple. Leaders, Major Bradley, in conjunction with Joel Wainwright, Esq. (who has kindly promised to meet the members and conduct them over new ground). The train leaves Guide Bridge a 1.43 p.m. Tickets, 9d. each (available to return to Ashton), to be had from the Hon. Sec.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

C. J.—The only supposition is that the glazed surface of your porcelain dish has become cracked or abrased, and that the porous body beneath has absorbed some substance which interferes with your results.

W. T. (Zurich).—We have not ourselves tried the formula. Having gone as far as you have, we should advise you to add ether gradually, and shake until the cotton dissolves. In the second formula, the bleached lac seems to us to be in excess. We should advise you to add to the mixture two drachms of dry sodium carbonate, a trace of glycerine, and to double the quantity of water. If this does not put the matter right kindly write again. We are sorry you have had so much trouble in the matter.

L. M. B. P.—For a black tone nothing is better than a ripe acetate bath—say, sodium acetate 75 grs., gold chloride 3 grs., water 1½ pint, allowed to rest at least 48 hours before use. For purple tones use sodium tungstate 20 grs., gold 1 gr., water 8 ounces. Why do you not try a gelatino-chloride paper?

Peter Simple.—Yes there are—or perhaps we should say there were—several methods known to chemists by which methylated spirit could be deprived of its peculiar smell, and this circumstance no doubt caused our Inland Revenue authorities to alter its composition.

M.—Sodium silicate is made by fusing fine sand with about half its bulk of sodium carbonate, and with a small quantity of charcoal. It has no photographic application except in furnishing one of the constituents of the substratum used in collotype work.

Taff Vale.—The best material, in our opinion, for a focussing cloth, is a black cotton twill known as "Attilia." We believe that most drapers sell it; but if you have any difficulty in this matter, we can tell you where to obtain it. It is as opaque as cloth, is much lighter, and does not cling to the shoulders as some materials do.

J. C.—There is nothing better than a solution of good gum-arabic; see that it is free from acid.

Memoria.—Your proposed plan of flowing with gelatine emulsion a canvas prepared for painting sounds well in theory, but is no good in practice. The painted film would inevitably peel off in process of time. Messrs. Morgan & Kidd print pictures on specially prepared canvas, which, we can say from experience, is quite free from this fatal objection. But if you are resolved to do the work yourself, you can find full directions on page 333 of the current Year-Book of Photography. If you have not a copy, one will be sent direct from our office on receipt of 1s. 4½d. to cover postage.

Josh.—The matter has not been forgotten; we are holding it over, as being not exactly seasonable. You shall hear from us by post.

Marius K.—The process described is certainly ingenious, but it seems to us that it does not present such novel features as would warrant the course you propose; moreover, the results obtainable with it are no better than those procurable by existing and less costly methods.

Devel.—Your results are certainly contrary to the experience of most workers with eikonogen, and we can only suppose that you have not left the plate long enough in the developer to secure the detail you expected, otherwise your exposure must have been too short. Eikonogen is essentially slow in its action, but it is very sure in the bringing out of detail, if the detail be only there to bring out.

Sigma.—See reply to "Devel." The sulphite of soda should be pure, and should in quantity be double the amount of eikonogen.

Clouds.—We refer you to a paper read by Mr. A. W. Clayden, before the Croydon Microscopical and Natural History Club, in the spring of 1891, on the use of black glass for cloud photography. In this paper you will find your questions answered in detail.

Z. Y. X.—The spectral window in your picture is caused by reflection from the curved surface of your back lens. The effect is rare, but we have seen more than one instance of it.

C. O. B.—The specimens are hardly good enough to secure you the position you aspire to. Gather a few more, and let them show a little more originality of pose than the present ones.

Kodak.—You, of course, bind yourself to no promise to the company that they shall develop your pictures. You can easily do the work yourself, for it is quite simple.

Carbon.—You have probably added too much ammonia to the sensitising solution.

Black and White.—Papers of various grains are sold purposely for photographic process drawing by Corneillessen, Great Queen Street, London, W.C. These papers cost about four shillings per sheet.

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At the general meeting of the Club of Amateur Photographers, in Vienna, on March 24th, it was decided to re-name the Association "The Vienna Camera Club."

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1808. APRIL 28, 1893.

NOTES.

THE Hon. Secretaries of the Central Photographic Club inform us that they are prepared to receive applications for shares in the new concern, which we trust will be a success. The capital is stated at being from £500 to £1,000, which means that of the £5 shares fifty shillings will be required on allotment, and the remainder will be called for, if wanted, later on. The Hon. Secretaries are Mr. W. Fenton Jones, of 12, King Edward's Road, Hackney, and Mr. C. H. Oakden, whose address is 51, Melbourne Grove, East Dulwich, S.E.

A WRITER in the *American Amateur Photographer* recommends as a mountant a preparation of starch, which will keep good for any length of time. The secret is the use of boracic acid, dissolved in the water with which the mountant is to be mixed; proportion, one drachm to four ounces of finished paste. It may be mentioned that boracic acid has no smell, nor is it poisonous.

THERE are doubting Thomases who refuse to believe that solid stones or aërolites ever find their way to this earth, and look upon the specimens of such things exhibited in our museums as being simply boulders of the ordinary kind. It is true that such stones have seldom been actually seen to fall, but there are a few instances on record of a perfectly authoritative nature.

SOME months ago a report came from America of a man being struck dead by an aërolite, and particulars were given as to the entry of this missile at the shoulder of the victim and its exit at his back. This report was afterwards acknowledged to be the hoax of an imaginative reporter. We wonder whether the same silly joker is responsible for the statement that an aërolite falling at St. Louis, Missouri, has knocked off the arm of a statue there. This is the sort of episode which would be better believed in if it were illustrated by a photograph.

IF aërolites have really taken to statue destruction, they might turn their attention Londonwards, in which city there are many bronze bogies whose arms, legs, and other parts might be knocked off with advantage. In the language of the poet, "They never would be missed."

WRITING of the medal mania, our genial American contemporary, *Wilson's Photographic Magazine*, has the following :—"Even our old greybeard friend and numerous medal-taker, Mr. H. P. Robinson, has entered a protest, and some committees will not permit a medal to go for pictures for which a medal has been previously awarded. Medals will not soon again be of such value as they were when Mr. Robinson received his first, or even his twentieth, one. It is a different dispensation now, and the time is near at hand when the medal-taker will be almost ashamed to show his prize."

ACCORDING to the same authority, it has now been decided that, at the World's Fair, a fee of two dollars per diem must be paid by the holder of a camera, and that that camera must be a single one—*i.e.*, it must not be capable of taking stereoscopic pictures. The right of taking stereoscopic views has been sold to Mr. B. W. Kilburn.

THIS being the case, the over-clever ones are discussing the best means of circumventing the regulations, and one newspaper-writer points out how two hand-camera holders working together, with the same type of lens, shutter, plate, &c., can easily get stereoscopic views if they require them. It is probable that, if no regulation existed against them, not one photographer in a thousand would dream of taking stereoscopic pictures. It is the forbidden fruit that is always so attractive.

We were invited a day or two ago to inspect some new ideas in framing photographic portraits, now for the first time being adopted by Messrs. Barrauds, of Oxford Circus. The outside frame is either silver, or aluminium, or gold, with, in some cases, a smaller metal frame inside, but the principal charm noticeable is the flat, which, instead of being merely plain grey or white paper, is Japanese stamped leather. The leather, which is singularly rich both in design and colour, ranging from yellow and grey to blue and silver and crimson and gold, makes a very handsome mat for mounting pictures, the first two arrangements of colour going particularly well with a silver frame and a platinotype print, and the latter with a carbon print for example. Messrs. Barrauds had the good luck to come across a large parcel of this stamped leather, and purchased the entire lot.

Thanks to the recognition of the *Société Francaise de la Photographie* by the Government as of "public utility," it was invited to attend the National Congress of the various scientific societies, which has just been held in the buildings of the Sorbonne. All the delegates attending the Congress had the right to have their railway fares reduced by one-half on production of the letter of invitation. This is one of the advantages of sytematic State aid to science. We have not yet in England reached this point.

From the report of the proceedings in a certain divorce case heard last week, where the parties were married in Dakota, we gather that a marriage certificate there is a very pretty document. The one concerned, which was handed to Sir Francis Jeune for inspection, was ornamented with two turtle doves, and contained places for two photographs. The Court was pleased to indulge in "laughter" at this display of art, but really the idea is not a bad one. Indeed, if it were not the fashion to have "no cards," we should be inclined to suggest that marriage cards should be similarly ornamented. Photographic fashions are sadly needed to give a little impetus to the dulness of the trade nowadays.

It is difficult to understand the exact motive which prevents a man sitting for his photograph. Cases of dislike to the operation are not rare, especially among men of note. The latest is that of the late M. Taine, who would never have himself photographed. His aversion extended to paintings, and he would never allow his portrait, painted by Bormat, to be taken out of his house.

Photography has rendered a service to Biblical students. Mrs. Lewis, a Cambridge lady, while on a visit last winter to the Convent of St. Catherine, discovered a manuscript which, on examination, turned out to be a palimpsest, the under writing of which was a very early text of the Syriac gospels. The MS. was stuck together, and, after separating the leaves with steam, Mrs. Lewis photographed each leaf, and sent the negatives to Cambridge to be deciphered, with the result that some interesting surprises as to text variations are in store for scholars. It would be interesting to know whether the photographs or the original leaves were the more easily decipherable. It is quite conceivable, supposing there were variations in the colour of the inks, that the photographs might offer advantages.

As we go to press, Mr. George Davison writes to ask us to put right a little misunderstanding which has arisen concerning access by the public to papers read at the Camera Club Conference. He tells us, that although all rights are reserved as regards copying, the papers will appear in the Conference number of the Club *Journal*, which will presently be published by Messrs. Harrison & Sons.

After a hurried glance through the Academy Exhibition, which opens its doors to the general public on Monday next, we are able to state that the show is well up to the average, but that no picture is likely to greatly shine above its fellows. There is a splendid camel charge by Lady Butler, a magnificent seascape by Brett, and some other fine pictures which linger in the memory. The water-colours are unusually good, and there are many fine miniatures. It is certainly very apparent for one thing that the new impressionist school has either cut the Academy or the Academy has cut the impressionists.

Messrs. Hunter & Co., of Lewisham, have sent us a bottle of their mountant, "Photofast." It is guaranteed to be free from any noxious thing which may hurt a print. It certainly sticks well and is pleasant to use.

We understand that Her Majesty has granted the proprietors of a society and fashion paper the privilege of photographing the most important pieces of the famous service of gold plate at Windsor, valued at no less than £2,000,000. The reproductions from the photographs will appear in May.

PHOTOGRAPHY IN FRANCE.

BY LÉON VIDAL.

TOGRAPHIC ANNUAL—ARTISTIC EXHIBITION OF THE HOTO CLUB OF PARIS—STRETCHED FILMS OF M. LANCHON—MAKING NEGATIVES FROM NEGATIVES, ND POSITIVES FROM POSITIVES, BY OVER-EXPOSURE, ITH OR WITHOUT BICHROMATE OF POTASH—IGHTING OF THE DARK ROOM—PHOTOGRAPHIC ROPERTIES OF SALTS OF CERIUM—FETE ORGANISED Y THE PHOTOGRAPHIC UNION—DESIDERATA OF THE HOTOGRAPHIC SOCIETIES OF THE DEPARTMENTS—ELATIONS BETWEEN OFFICIAL SCIENCE AND PHOTO-RAPHY—CONCURRENCES OF THE VARIOUS SOCIETIES ND PERIODICALS.

THE Committee of the International Union, and of the National Union of Photography, at Paris, is about to publish a general year-book for 1893. This volume, which will be on the lines of those published in England, will be edited and organised by a society anxious to benefit the public, and possessing ample facilities for doing so. order to make internationalism complete, it would necessary for other nations represented in the Union lso issue annuals, which, however, appear to be not so ch a necessity in other countries as it is in France, ere, up to the present time, no publication has ever been issued as complete as this which is about to ear annually under the best possible auspices.

here is at last some probability of having in France artistic exhibition of photography, to be held by the to Club of Paris. This project is to constitute the gramme for the next meeting. It is a very happy , and its realisation, we may confidently hope, will tribute materially to the just appreciation of the utiful art of making sun pictures. It is impossible to on what reasonable grounds this particular art should excluded from either purely scientific or artistic ibitions. The discussion of the value, greater or ller, of photographic works from an artistic point of need involve no disparagement of scientific photo- phy, and there is certainly no reason whatever why an ibition of artistic photography should not be as success- in France as it has already proved in England.

nportant improvements have been effected in the tched films of the Maison Planchon, at Boulogne-sur- . As is well known, these films are a decided ntage over others on account of their frame, which lers their use much more convenient, and also more . We do not think that any better means could be ised of overcoming the habitual difficulties in the loyment of sensitive films. Thanks to this system, portable apparatus can hold a great many more itive surfaces without the inconvenient weight of a considerably smaller number of glass plates. This constructs special frames capable of holding twenty- films in place of the usual dozen plates. Truly a ble mark of progress! Besides, these stretched films well adapted to work which could not be as satis- rily accomplished with the ordinary flexible films.

It is necessary once more to return to the subject of reversal by over-exposure. The question is a most interesting one, in this way—that it leads to the obtaining of negatives or of positives in the dark room at will. First and foremost, it is a known fact that, if a sensitive plate is placed against an ordinary negative, which is exposed to the direct light for about two minutes, a negative, and not a positive, is developed, such as might be expected, and a reversal of the picture is, of course, produced. When the plate employed is not specially prepared, there is a risk of a very decided cloudiness. It is, therefore, desirable to have recourse to a special process, of which the basis has been already indicated some time ago by Captain Biny. Mons. Balagny has taken up this study, and he obtains the most satisfactory results. His method prevents all danger of fogging, and the work can be carried on easily, making operations possible not only by contact, but also in the camera, so as to permit of reduction or amplification. The course to be pursued is as follows. The negative is reproduced by the light transmitted, upon a gelatine plate of the usual kind. The development is normal, but directed in such a manner as to accentuate the blacks, and render the whites more brilliant. The plate must be washed, so as to eliminate all trace of the developer, and is then placed upon a black surface, and exposed from ten to twenty minutes to diffused light. The whites only of the positives are impressed, since the blacks formed by the reduced silver have served as a screen to the plate lying beneath. Then, after washing the positive, it must be plunged into the following bath:—

Water	1,000	grammes
Bichromate of potash	30	,,
Ordinary nitric acid	12	c.c.

The object of this bath is to subdue the blacks of the positive. The reduced silver is transformed into nitrate of silver, which, in presence of the bichromate, gives place to a pulverulent deposit of chromate of silver. As soon as the picture positive formed by the whites—which have very slightly darkened—begins to be visible by transmitted light, the action must be stopped, and, unless stopped at precisely this point, success will not be obtained. The plate must be thoroughly washed, so as to obliterate all traces of the bichromate, and it is re-developed by pyrogallic acid, or by any other fresh, energetic agent. In this second development the whites of the positive are reduced, and, as they correspond exactly to the blacks of the model, we shall get a direct negative. Lastly, it must be fixed in hypo, and, after washing, we thus obtain some very beautiful results. It follows that, if a positive is required, the prototype must be of the same kind, or, in a word, operate upon Nature itself.

The lighting of the dark room has been the subject of a very interesting discussion at the last meeting of the Society of Photography. Mons. Wallon has discovered in a recent publication the following passage:—"There should be some theory of lighting which would make it possible to obtain a perceptibly white non-actinic light by the combination of two complementary coloured lights, the one and the other possessing, consequently, the same properties."

It is impossible to put in print a greater enormity. This proposal brings us to the serious side of the subject, and we recollect the effect of two glasses coupled together, one yellow, the other cathedral green, which made an excellent combination, particularly agreeable to the eyes, which sometimes suffer much through the use of red glass, which ought never to be employed, excepting when the special sensitiveness of the plates makes it absolutely necessary.

MM. Auguste and Louis Lumière are engaged in a very interesting study of the photographic properties of salts of cerium. This metal has, like salts of iron, manganese, and cobalt, ceric salts and cerous salts, having analogous photographic properties, ceric salts being reduced by light to the condition of cerous salts. Paper coated with a solution of sulphate of cerium, and exposed to the light under a positive, immediately gives a visible picture by the discoloration of the cerium salts due to the action of the light. In treating the paper impressed by a *phenol* or an *amine*, we obtain a coloration varying according to the nature of the tint employed.

The Society for the Mutual Help of Photographers has organised an interesting musical, dramatic, and photographic *soirée* for May 12th next. The attractions of this *soirée* will be augmented by the drawing of a *tombola*, in which all the holders of paid tickets will have a right to one or two lots, in proportion to the price of their tickets, which will be either five or ten francs each. There must be not less than 700 lots to ensure the success of this arrangement. The principal artistes of the Paris Theatres have kindly promised their valuable assistance, and, in addition, photography will be represented by scenic projections of a perfectly new description.

The re-union of the delegates of the photographic societies of France is about to take place, and of all the results produced by the different societies they depend chiefly upon the concurrence of the Central Committee to realise their various desiderata. Certainly, from this point of view, things seem not to progress as well as could be wished. However, "Heaven helps those who help themselves," and if they only fulfil the conditions they will, no doubt, experience the truth of the proverb.

It has been decided to invite the photographic societies this year to participate in the works of the learned societies at Sorbonne, the delegates of the latter having been especially interested in the former. There is no doubt that photography is daily gaining ground, and its progress in scientific and artistic estimation must be patent to all.

A number of photographic conferences have been held by different associations and also by the press, and we believe that this means of stimulating the zeal of adepts cannot fail to have good effects. Still, an unfortunate impression undoubtedly remains that photography enters into the realm of sports, and that it makes common cause with cycling, athletics, yachting, &c., &c.

A CAMERA TRIP IN GREAT BRITAIN.

BY CATHARINE WEED BARNES.

(*Concluded from page 253.*)

OUR stay in York was less than two days and we chanced on a showery seasor though generally our trip was wonderfull free from such annoyances. But nothin can daunt the determined camera fiend : s taking a carriage to insure covering as muc ground as possible in our brief time, w drove to the four gates, or bars as the are called, and captured them with little resistanc or hindrance, save from curious onlookers. It is curious fact that, although a spot may seem deserte when the focussing cloth is first slipped over one's hea when it is removed quite a sizable crowd has meanwhi been evolved, apparently out of the air ; and, thoug curiosity is said to be a distinctly feminine trait, suc crowds are usually masculine. A short stay in an around the glorious Minster, a few interior views b special permission, then I carried my impedimenta quit a distance on the walls, did some execution, and the obtained a few street bits. The Parliament building, no used as a Municipal Court, hung with curious relics, ar having old stained-glass windows, was the spot where wa first held what has since grown into the British Parli ment. The ordinary tourist might likely never see th old structure. It is in an out-of-the-way place, and clo by it is a weird, gloomy, covered passage leading to th river, which looked as if it had a tragic history. On o way to St. Mary's Abbey, the ruins of which are pr served in the grounds of the Philosophical Society, w passed and photographed the gateway to the form Bishop's Palace, standing isolated in a square facing wh is now a blind asylum. As one enters the grounds S Leonard's Hospital, founded by King Athelstan and nc only a ruined fragment, is seen on the right hand. The is a valuable museum to be visited, but the main intere centres in St. Mary's Abbey. Many Roman relics ha been placed here for preservation, as Eboracum (nc York) was one of the most important cities held Rome, where more than one of her emperors dwelt, a where one legion had its headquarters for three centuri Some historians claim that the name of this city is c rived from the Danish "Jordvik," and it is impossible turn in any direction without treading on historic grou For nearly three hundred years the ruins of St. Mar have stood as at present, though the abbey, found about 700 A.D., was burned in the reign of K Stephen, subsequently rebuilt, and at the time of Her VIII. had a rent roll of what would answer in our d to about a quarter of a million dollars. Henry did need to have recourse to any of the sharp, mon making "deals" of this enlightened age when it is membered that there were over seventy Cisterc monasteries, to say nothing of others in England, at Dissolution. One walks encompassed by shadows in t old city, and the stirring life of to-day seems jarring a discordant as we retrace our steps mentally through ng centuries of its existence. A curious, staring crowd half-grown men and boys watched me as I photo- aphed Micklegate Bar, under which Edward IV. passed th his victorious army after the sanguinary conflict of owton Moor, where a hundred thousand men were said have been slain, and saw on the battlements the head his father, the Duke of York. This title, as is known, s lately been revived in favour of the son of the Prince Wales. In York Castle, but not the present structure, curred the massacre of the Jews in 1190, during one of e unchristian anti-Semitic riots—not, it is to be re- etted, entirely a matter of past history, when in our y and generation we see repeated the illiberality and ireason which blocked the progress of civilisation by e expulsion of the Moors from Spain and the revocation the Edict of Nantes in France. York has, however, s peaceful memories, it being on record that the learned lcuin, Lindley Murray, Wilberforce, and other well- nown names are numbered amongst its sons.

Banished from York, the monks of St. Mary's urneyed northward to Ripon and sheltered under hat are called the Seven Sisters Yews, two of which e yet standing, while they built Fountains Abbey. ull of picturesque monastic ruins as England is, erhaps none is more impressive in its fall than ountains Abbey. It is situated three miles from Ripon, the grounds of Studley Royal, owned by the Marquis Ripon. More than twelve hundred years ago monks om Melrose built a monastery, a fragment of which ow forms part of Ripon Minster, which commands terest even so near its stately rival. The latter was rdly finished at the Dissolution, and yielded a wealth treasure to the royal robber. The buildings once vered about eighty acres, and excavations have been ade to reveal the original ground plan. It is necessary walk a mile from the lodge, as no carriages are allowed side the gates; but a wheel-chair and porter were cured, which much facilitated my work. We spent bout three hours in a spot where a week would have een none too much time, and obtained twenty-two views. he chair, however, could not go off the path, and con- derable gymnastic exercise was gained carrying a large amera and several holders over ruined walls, up and own steep places and through narrow openings, to cure desirable points of view. I offer this item of ersonal experience as a suggestion to fellow-camerists ho may be as I was, at Fountains, much exhausted and et anxious to improve the opportunity; also another, seek at almost any cost of time or trouble to avoid the tereotyped places from which any view is usually taken. foot one way or the other may make all the difference the world with the result. So strong is my feeling in his respect that in one case, where after scornfully ejecting a certain position, although its suitability was videnced by sundry triangular dents in the ground hich were pointed out to me by a fellow-camerist, I ound the position was really the best and had to come ack to it. Before placing my tripod I carefully moothed the earth over all traces of previous work. et me urge again the use of two or more lenses, as the rtistic effect of the pictures can thus be greatly varied In specially fine views focus with one after another before deciding on the proper one for exposure; and as a result of my summer's work I am convinced of the advisability in the long run of slow plates and long exposures. The Lady Chapel, or Chapel of the Nine Altars, is the most beautiful part now existing in Fountains Abbey, and the view from it is most impressive through the chancel and down the nave to the large window, whose stained glass is represented by the foliage of a large tree, through which when I saw it the sunshine was flickering. The entrance into the refectory shows the secure masonry of the monks, and I also made one view of the Great Cloisters, which are some three hundred feet long, one end of which is carried over the little River Skell, and near by is the abbot's house. A broad, well-kept path takes one around the whole circuit of the buildings, and some little distance off is Fountains Hall, built out of materials from the abbey, a considerable part of which was demolished for that purpose. Needless to say I did not desire to see Fountains Hall. This abbey is usually compared with Furness Abbey in the Lake district, each having its admirers, but it seems to me that while one is grand the other is beautiful. An account of our visit to Durham must be postponed to some future article in order to do it full justice, and only want of space prevents my wearying the reader with a more detailed story of our never-to-be-forgotten visit to stately Fountains Abbey.—*American Amateur Photographer.*

NATURALISTIC PHOTOGRAPHY.

BY P. H. EMERSON, B.A., M.B. (CANTAB.).

(Continued from page 247.)

AND now we will return to the main subject, which I shall lay before you in a series of *propositions only*, for psychology has not yet become a science in *the true sense;* psychological work is merely in the working hypothesis stage, though by no means at the worked-out hypothesis end.

PROPOSITION I.

That the material universe may be regarded by us as eternal (though varying in aspects), and the fountain-head of all our *sensuous* impressions.

PROPOSITION II.

That accepting the doctrine of evolution the mind has evolved from the merest crude sensations of the amœba to the complex and subtle sensations of the master artists of to-day.

PROPOSITION III.

That in the course of this evolution there arose the sensation and perception of the beautiful,* and this emotion was followed by acts intended for ornamentation of their persons or homes.

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* According to Darwin this is a fact first noticeable in birds.

Proposition IV.

That from this germ developed the sense of the beautiful, until in civilised man this appreciation of the beautiful may be divided into three steps :—

1. That of sensation.
2. That of perception (intellectual).
3. That of emotion.

That these three be three distinct processes, yet are they one—indissoluble.

Proposition V.

That the appreciation of the beautiful is thus *subjective*, an ideal existing in the minds of men in varying degrees of development ; and that though Nature (by which the objective world is meant) has probably produced at various times exquisite harmonies, it took man to recognise these as beautiful, and so it has been said the artist is the master of Nature.

Proposition VI.

That as the NERVOUS system developed, these appreciations became more delicate and subtle, and so a man with a naturally delicate sense of vision gradually purges himself of the coarser emotions, and his perceptions are more purely cerebral acts. A master artist regards first of all by mere *acquaintance* the decorative harmony of a picture or natural scene, *then* by previously acquired knowledge he *knows* why it is lovely, fit, true in sentiment, and *distingué*, and that knowledge gives way to the emotion of joy, which is expressed physically by his smiling face.

That the *reverse* is the process with the Philistine ; the crude and tawdry appeals first to his emotion, hence the popularity of the sentimental subject : of the anecdote ; of "literature in the flat."

Proposition VII.

That we have physiological proof that men's sensitiveness vary in degrees of fineness ; thus a *virtuoso* in flour knows samples grown in different countries by their feel, a *virtuoso* in wine knows a glass of port taken from near the bottom from one taken from the top of a bottle ; and the blind Laura Bridgeman knew purely *by touch* the clothes of all the inmates of a workhouse. From which it is self-evident that in all persons the boundary of their appreciation is hard drawn ; in some cases, therefore, fatally limited by their very organisation. A man whose vision is not delicate can *never see* the delicacies of line, colour, and tone patent to a more delicate nervous organisation. Such a limited person is for ever doomed to be outside the pale of the pictorial art world, as the man with no ear for music is for ever doomed to be an "outsider" in the musical world.

Proposition VIII.

That as the sense of beauty is a human ideal, this ideal will vary with individuals and *in* the individual from day to day, nay, from hour to hour. Indeed so complex are the brain processes, and so dependent upon each other, that an artist may begin a picture with one ideal and finish it with quite a different ideal. Indeed, it is one of the great difficulties of the artist to keep steadily to his original ideal throughout the work. A glass of wine, a santonine powder, may completely change his ideal or power of execution. From which it is plain how delicate a thing is a work of art, how thoroughly *personal* is every touch in a work worthy the name of art—what a perfect index of its creator's mind.

Proposition IX.

That the ideal existing in any given brain at any moment is a complex and refined essence, the result of the man's whole previous life up to date : wherefore this ideal is no mere reflection of Nature, but a result of imagination, or the selection from various ideals or parts of ideals ; and thus man may go beyond Nature and conceive things that do not exist in the world—such as the vase, the phonograph.

That fine art is the artistic expression of this ideal by a *personal* method, and that no man is an *artist* who has the ideal and can see the beautiful if he have not the power of execution as well. Art is therefore achievement. By their *results* alone are artists to be judged ; as thus a very inferior *technician* may be a very delicate seer of the beautiful, but the world rightly only gives him credit for his picture—*his result*—and if that be poor, if his hand cannot express his ideal, he does not rank highly nor often does he get credit as a seer. "Art is therefore with the man," as Mr. Whistler has said.

Proposition X.

That Nature sometimes sings in tune, or succeeds in producing glorious and exquisite harmonies, harmonies fully appreciated by the seers of the beautiful, for many more may appreciate than can depict ; hence the rarity of real artists. Whence also a layman may be a far keener seer than most painters ; but seer *and* masterly executant is Genius itself.

Again, that the harmonies of Nature are altogether different from the harmonies of art—are dependent on different phenomena, and that Nature and art are different worlds. That Nature sometimes sings in tune Mr. Whistler himself has allowed, but I submit that it is absolutely impossible to reproduce that harmony on a plane surface : it is a thing by itself, a thing apart : though a number of unphilosophical painters *think* they do reproduce Nature—but they do not. Here is a very simple proof suggested to me by my friend Mr. Havard Thomas, a sculptor. Let the observer look at a distant landscape behind some reed-stalks in the foreground. The reed-stalks in Nature under certain conditions do not blot out *any* of the background ; *we see around them*, and see the *whole* landscape beyond. In art the reed-stalks would always *blot out* part of the background. I think our sense of the third dimension of space or "distance" arose first through this peculiarity of vision. For further and deeper proofs of the utter impossibility of *reproducing* Nature as we see her I must in a brief paper like the present refer you to Professor Helmholtz's *Scientific Lectures*, to Mr. Rood's *Chromatics*, and to our *Perspective Drawing and Vision*. A careful study of these publications, aided by a few experiments made for himself, will convince the veriest neophyte that it is *impossible* to reproduce Nature or make a "mere transcript."

Proposition XI.

That in photography we are confronted with a new phenomenon, in that we find some of the results of a *machine* give true pleasure to master artists which has never hitherto been the case with machine-made works.

Proposition XII.

That photography is not art because a machine comes between the man's ideal and Nature, and the result is *machine-made*: the trapping of a sunbeam. Say the photographer, like the painter, goes to Nature with certain ideals—we will for illustration's sake assume that two men have exactly similar ideals of the beautiful (which is of course impossible). They go together to Nature, and find a beautiful natural harmony in a lovely stretch of purple sands by the sounding sea. The photographer at once sets up his machine, focusses and exposes; but in these very processes *his* ideal has *gone*. What results *may* be beautiful, but it is no more the representation of his ideal, the vision he first saw. It is something else, for the machine imposes certain conditions which were never in the photographer's mind at all. How often has the most experienced of us been disappointed with the photograph of what was fine in Nature—fine to our eyes that is, and sometimes *vice versâ*?

The painter, on the other hand, begins, and if he be an expert each touch helps to his desired or ideal end; this wavelet is delicately put in, that breaker strongly and broadly, and so on: everything is done unto one end, and all is certain from the first—whereas the photographer has boxed a maimed and contracted reflection of what he saw. True it may be a beautiful reflection, but after all it is *Nature's drawing*, and not the man's. Still such machine-drawn pictures may in certain cases satisfy, or rather harmonise with the photographer's ideal of beauty, or indeed with the master painter's, as does a beautiful natural landscape; and yet again the beautiful photograph is not *art* any more than the natural scene of which it is a reflection.

Proposition XIII.

That although the machine draws the photograph, yet in the production of a photograph there are a few (very few) very limited *incalculable* elements as there are in organ grinding and engine driving.

These are—

(1) Selection of view.
(2) ,, lens.
(3) ,, focus.
(4) ,, developer.
(5) ,, printing method.

These limited incalculable elements give a man a very limited opportunity of blending his materials to his ideal, and though by taking advantage of these *with knowledge* he may surpass other photographers in decorative work, still they are too limited for him to express to any degree of certainty or fulness *his ideal*, and since the drawing is mechanical, these few very limited incalculable elements cannot enable a man to express his ideal in anything like the same degree as does a personal art. Indeed photography is not nearly so *personal* an art as sailing or rifle shooting, both of which have very little of the mechanical about them and much of the personal.

In photography man puts the machine under certain physical conditions, and the machine will always (under these same conditions) bring about the same result, therefore the process is logically mechanical. On the other hand, a personal art is one in which the results would differ again and again under the same physical conditions, for the *mind* would work differently on each so-called "replica" of the original—*no artist could paint two pictures exactly alike*. A photographer might take fifty views of a subject exactly similar, from which it is self-evident that photographs are not works of art in the sense accepted by artists, though photography may be an art or craft in the old sense of the word art, as surgery is an art; but such a use of the word "art" as applied to photography would not satisfy the *dilettante*, for the word used so would include *every* photographer as an artist, which is not what the ambitious amateur means at all.

Proposition XIV.

That therefore it would be wiser for all photographers to drop the use of the words "art" and "artist" in connection with photography (photography is a science or hopes to be some day), and classify exhibition works as—

(1) Decorative or pictorial (when the *intention* is merely and purely to produce a beautiful thing).
(2) Scientific (accurate mathematical reflections).

By using the terms "decorative or pictorial photographs" and "scientific photographs" we should, I think, allay all opposition from artists—not to say painters—and critics (who are right in refusing to call photographs works of art), and should be at the same time working in a less pretentious way and in a legitimate pursuit, humble as compared with painting, 'tis true, though the best results surpass all but the masterpieces of art in beauty. And I would suggest that this Society sets the example at their forthcoming Exhibition and describes the works submitted into two classes, scientific and "decorative or pictorial"; for works should be classed according to their intention.

Proposition XV.

That decorative photographs are worth doing (if well done) because they give us certain beautiful qualities art cannot give, hence their *raison d'être*. That the producers of such may prove themselves as keen seers (not artists) of the beautiful as the master artists themselves. They may have art-knowledge too, yet if they be no creators by personal method I submit they are not "artists." But then this does not mean, on the other hand, that mediocre draughtsmen whose vision is vulgar or obtuse are to crow over these seeing photographers, for such mediocrities are not "artists," and indeed, seeing photographers have far more claim to the title, as the masters would allow.

Proposition XVI.

That though photographs are sometimes more beautiful than art, they never equal Nature when she sings in tune. Indeed, I submit that when Nature "sings in harmony" she is more beautiful than photography or art, unrivalled in her delicacy, fineness, and distinction.

Proposition XVII.

That "idealism" and "impressionism" if used in connection with photography, are mere contradictions of terms, and used by slovens in thought—or worse.

(*To be continued.*)

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, APRIL 28, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PHOTOGRAPHY AMONG THE RED MEN.

THAT branch of knowledge which is called Anthropology, which comprises the natural history of man, has benefited as much by the help of photography as any other field of science to which the ubiquitous camera ministers. We can at once appreciate this by turning over the pages of any moderately old book of travels in which illustrations are given, and more particularly works in which the forms of more or less savage tribes are delineated. Very little attention is paid in such books to racial characteristics, and the men and women pictured are mostly mere guesses at their appearance as described by the traveller to the imaginative artist, who probably had never seen any other human beings than those of his own native town or city. The draughtsman possessed his own conception of what a man should look like, and that man would naturally be one of his own fellow-countrymen; it might be an Englishman, Scotsman, or Irishman. To alter the type to a native, say, of South Africa, the process would be a perfectly simple one. He would be drawn *sans* raiment, and his skin would be changed from white to black. It was the same in the old days with the lower creation, and zoological specimens most fearfully and wonderfully constructed were palmed off on the confiding public in all honesty of intention. Dragons with wings, the unicorn, the phœnix, and other fabulous creatures became in this way firmly believed in, and parts of the stock-in-trade of the veracious chronicler of the world's inhabitants. Even in books of travel, which are not too old to be described as modern, little has been done to improve upon the past, save that the artist can refer to museums, and has other sources of information to prevent the more grievous errors committed by his predecessors.

It is, therefore, with feelings of satisfaction that we note that such a well-known traveller as Mr. E. F. im Thurn has brought before the Anthropological Institute of Great Britain and Ireland a masterly paper upon the uses of the camera in connection with this subject.

Mr. Thurn points out in his preamble to this paper that primitive phases of life are fast dying out in this age of restless travel and exploration. The modern savage is brought so closely into contact with civilisation that he is savage no longer, and becomes as uninteresting as the rest of us. He considers that it is the duty of travellers, before it becomes too late, to put on record these fast disappearing phases of life, and that they should use pen and pencil, but more especially should they invoke the aid of photography. But the camera-bearing traveller must take heed that there are photographs and photographs, and that while the one is highly valuable, the other kind is little better than useless. As an example he mentions a picture in a recent book of travel of one of the Caribs of his own country of Guiana, a picture which is evidently taken from a photograph. Yet that picture—although it appears in a book which is most valuable and accurate in most respects—is not a bit like a Carib in his natural state. Mr. Thurn knows these Caribs well, and describes how in their native woods their red glistening skins are clothed with but a narrow strip of cloth, perhaps ornamented with a splash of red paint. It is in this state that they should be photographed. When, on the other hand, the Carib goes once in a year or so to town, he does as the white man does, clothing himself in such articles of cast-off modern wearing apparel as he can obtain, and looking as mean and as wretched an object as it is possible to conceive. It is evident that a picture of Mr. Carib, taken when in his "Sunday best," is useless as a specimen of what the man is like.

Mr. Thurn has had a wide experience in photographing among semi-barbarous people. Fifteen years ago he went to Guiana as curator of the museum there, travelling much in the interior of the colony. Five years later he became a magistrate, and took charge of a large district inhabited almost solely by red men.

Later on he was transferred to a still larger district, of which it might be said that the white men who had penetrated there might be counted on the fingers of one hand. During all this time Mr. Thurn lived among these people as one of themselves, and had opportunities of making friends of them such as would be impossible to a traveller merely passing through the country.

And it was highly necessary to gain the confidence of these Caribs before one could attempt to photograph them successfully. Let us quote a few words from the paper in proof of this. "The first time I tried to photograph a red man was among the mangrove trees at the mouth of the Barima River. He was carefully posed high up on a mangrove root. He sat quite still while I focussed and drew the shutter. Then, as I took off the cap, with a moan he fell backward off his perch on to the soft sand below him. Nor could he by any means be persuaded to prepare himself once more to face the unknown terrors of the camera." A common thing which happened was for the subject, at the moment of exposure, to put up his hand to hide his face, thus illustrating the curiously widespread objection of primitive folk to have their features imaged, dreading, no doubt, that by that means the operator was obtaining some uncanny power over them.

Mr. Thurn's remarks were plentifully illustrated by lantern pictures, and some of these showed unmistakable evidence of having been secured without the knowledge of the persons whose portraits appeared therein, for there was none of that awkward consciousness which is displayed by uncivilised as well as civilised folk when they know that the eye of the lens is upon them. Many other pictures had for their subject dresses and appliances used by the Caribs on state occasions, and, shown in this way and fully described, they aroused far more interest than would the original articles stowed away on the shelves of a museum. Mr. Thurn must be congratulated on calling attention to such a valuable application of photography.

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The Council of the City and Guilds of London Institute, recognising the increasing importance in the mechanical reproduction of pictures, will, in the forthcoming examinations to be held on the 3rd and 13th of May next, give special importance to this branch, by dividing the examination in the honours grade into two classes, one for pure photography, and the other for photo-mechanical photography. Special examiners have been appointed for each branch, and candidates have the option of declaring in which branch it is their intention of entering. They will not, however, be allowed to compete in both branches. The certificates granted will show in which of the two divisions the candidate has passed. The Council of the Institute hope that the encouragement thus given to the photo-mechanical division will tend to form in this country a school of competent craftsmen in this branch of photographic work.

PHOTOGRAPHY AND JOURNALISM.

BY T. C. HEPWORTH.

At an ordinary meeting of the Brixton and Clapham Camera Club, held on Tuesday, the 18th instant, Dr. J. Reynolds, F.R.G.S., President, in the chair, Mr. T. C. Hepworth, F.C.S., gave a very interesting lecture on "Photography applied to Journalism." The lecture, which was extempore and illustrated by means of fifty-seven specially-prepared lantern pictures, may thus be briefly summarised :—

In his opening remarks the lecturer pointed out to what a great extent the journalism of the present day owed a debt to the art of photography. Such papers as the *Graphic* and *Illustrated London News* are, in great measure, illustrated by pictures produced in this manner. The application of photography has, of course, tended to almost extinguish the wood engraver; but such an extinguishment must always be expected where machine labour is substituted for manual labour. As an instance he referred to the introduction of reaping machines which have almost driven the sickle from the field. Photography has ousted, to a large extent, the wood engraver, just as photogravure is gradually ousting the steel engraver. It is to be deplored, and we sympathise with those who are thus thrown out of employment, but, on the other hand, we cannot but congratulate ourselves on the steady advance photography is making in these applications year after year

The existence of such papers as the "Cuts" (and there are many "cuts") would be practically impossible were it not for the art of photography. Mr. Hepworth then showed a copy of one of the earliest newspapers, published in 1679, entitled "Domestic Intelligence, or Notes from City and Country." The original had two columns on either side, and consisted of one small sheet only—eight and a half inches by six inches. Only three small advertisements appeared in the paper; and he contrasted these with the big triumphs of printing in the present day, *e.g.*, the *Telegraph*, *Standard*, and *Daily News*, which contain from fifty to sixty columns of closely-printed matter, and are crowded with advertisements.

The want of illustration was felt at a very early date, and rough woodcuts very soon appeared. A specimen, "Saint Christopher," was shown on the screen. The original is supposed to be in the possession of Earl Spencer. The woodcut contained some really good work in it, rough as it was. This kind of illustration first appeared in the seventeenth century. A ludicrous specimen, representing "A Flood in Nottingham," caused great amusement. We must remember that there were few artists in those days, and people had to be content with such drawings. Still greater difficulty was experienced in getting someone who could cut the blocks for the press.

A portrait of Charles I. and his Queen, and another of Isaac Pennington, which appeared in the *Mercurius Civicus* in the seventeenth century, created some amusement when Mr. Hepworth informed the members that these portraits were often made to do duty for different persons at different dates, on account of the costliness of the blocks. This custom is still in vogue, as will be seen when our thoughts are directed towards the annual "penny panorama of the Lord Mayor's show." He referred to a paper of some years ago, entitled the *Illustrated Times*, in which it was the custom to insert old blocks from which the heads of the people had been excised and new ones substituted. A picture of the marriage of the Princess Royal and the Prince Frederick (afterwards the Emperor) was represented in this way. The same picture had appeared originally many years previously for a previous royal marriage. For many reasons the *Observer* may be called the first illustrated newspaper. An example from that paper (dated 1827) was shown, illustrating the dire effects of using steam for locomotion, and it caused much laughter.

The copper-plate process was sometimes used. It differs from the woodcut in this respect. In the copper-plate the lines are cut in, and in the wood block the lines are raised. In the former the lines are sunk, rolled with ink, the surface cleaned, the ink remaining in the lines of the picture. It was necessary, in employing copper-plate illustrations to first print the newspaper in the ordinary way and then pass it through the copper-plate press in order to print the engravings. Specimen copper-plate engravings from early copies of the *Observer* were shown upon the screen.

Another class of publication, known as the "broadside," appeared before the newspapers, and were not extinguished until about thirty years ago. Sheets were issued having a rough picture at the top, and perhaps underneath some lines, such as the history of a murder. Some of these old broadsides can be purchased in several of our back slums even to-day. A specimen was shown, Britannia bringing Nelson home from his last victory. In March, 1820, a picture appeared in the *Observer* representing the house in Cato Street where the conspiracy was formed, that conspiracy which had for its object the murder of authorities and the taking of the Bank of England. As usual, one of the conspirators turned informer, and the whole thing was blown upon. Many of them were killed in the struggle which ensued, and others were transported. A broadside representing the execution of Mary Perry for the murder of Mrs. Croydon at Stockport in 1834 was shown. On the top was a figure suspended from the gallows; but the artist was sufficiently artful to make the figure do equally well for man or woman, so that the block could be used again and again for different criminals.

Comparing these pictures with those of modern times, it will be seen how we have advanced in the art of pictorial illustration. An amusing picture representing "the first reading of the banns" in a West Indian church, was next placed upon the screen.

Having treated of the historical portion of his lecture, Mr. Hepworth traced the course of one of a woodcut illustration from its first conception to its appearance in the paper. The back of a wood-block was then shown. It being difficult to obtain boxwood more than 3 across, several small squares are bolted together. The chief engraver distributes these blocks between about eighteen engravers. When the picture is complete, the block is once more bolted together and put under pressure on a plate of soft wax, which makes a perfect mould. The mould is placed in an electrotyping bath and the metal block so formed is then prepared for the printer. The engraver's studio formed the subject of the next illustration. The wood-block is placed on a bag of sand, and the light is concentrated upon it by means of a globe of water, which acts as a condensing lens. Nowadays drawing direct on the wood-block is superseded. The drawing is made upon card or paper with pencil or wash (Indian ink tempered with Chinese white), and it is photographed direct upon the wood. There are several processes. The lecturer used to make chloride emulsion, rub it into the block, place the negative above it, expose to light and bring out the image by development similar to that of bromide paper. The original drawings are now preserved and represent a valuable asset.

In the pre-photographic days the engravers frequently spoiled the work of the artists, and many and serious were the rows in consequence.

Examples of the original drawings and of the printed reproductions were shown upon the screen, and it was practically impossible to distinguish one from the other, showing what a serious rival photography was to the engraver.

The lecturer then explained the working of the *Daily Graphic*. Commencing with the introduction of the roll of paper into the office, he described how it was wetted for printing upon, and the mechanism of the Marinoni and Middleton machines, which will print 3½ miles of paper in fourteen minutes. The rate of production of the paper in question is 50.000 copies an hour, five machines being used. The paper passes into one end of the machines direct from the roll, and comes out at the other, cut, folded, and ready for issue.

The members were next led in imagination to the composing room, the composition of a forme, the use of the type trolly, the formation of paper moulds, the cylindrical casting machine, and the working of the printing machines being explained so vividly that the audience could almost have done the work themselves if they were taken to the offices of the paper.

He next visited the studio, and described the manner in which the pictures were produced. They must, he said, be bold and sketchy, and regarded more in the light of suggestions than finished drawings.

Considerable amusement was caused by the copies of elementary sketches sent in to the office, some of them being like the productions of children. It is the duty of the artist, who merely uses these sketches as aids, to produce the sketch for photographing. The method of photographing by electric light, the acid baths, weather blocks, tape machines, the use of pigeons, and balloon sketches were each in their turn excellently described, and the lecture concluded with a picture of a group of *Graphic* artists, amongst whom were recognised Professor Herkomer and Mr. Frank Holl.

A vote of thanks was proposed by Dr. Reynolds, seconded by Mr. Coade, and carried unanimously, for the excellent lecture to which Mr. Hepworth had treated the Club.

JOHN DONE & CO.'S WORKS.

MESSRS. JOHN DONE & CO.'S printing and enlarging works are situated at Barnet, far away from the dust and fogs of London. Here, in premises built expressly for the purpose, are turned out weekly many thousands of prints on albumen, gelatino-chloride, platinotype, and bromide papers, from negatives on glass or celluloid; it is all the same, if we may judge from specimens picked up at haphazard from the tables, they can make good prints from almost anything. Mr. Done took us first into the filling-room, where several girls were putting negatives and paper in hundreds of printing frames, to be presently taken outside and placed in daylight.

We were next shown the sensitising-room for albumenised paper, where a large number of sheets are prepared every other day. This operation used to be carried on daily, but since the advent of Solio and P.O.P. the number of albumen prints required has considerably decreased. On the top floor of this building is the wet weather filling-room, so called on account of its proximity to the wet weather printing-room. In ordinary houses this latter would be called the attic, but this is not like an ordinary house, for the sloping roof is composed of glass, under which there is space for hundreds of frames at a time.

Following the career of the prints, we were next taken to the washing, toning, and fixing rooms. Here are dozens of stone tanks, each surmounted by a rose tap, supplied from cisterns above, which by a simple heating arrangement may be made to yield lukewarm water in the cold weather. This is a great advantage, both to the prints and the manipulators thereof. Once more upstairs, we pass through a room stacked to the ceiling with customers' negatives, through a room where three or four girls are engaged in spotting the finished prints, into another where the burnishing, and counting, and packing of the prints is conducted. Further on, we passed into an exceedingly dark chamber divided into two portions, which, when our eyes had become sufficiently accustomed to the gloom, we saw contained the enlarging apparatus, both for day and artificial light, and developing-room pertaining thereto. There is another dark-room in the building, used chiefly for developing amateur's plates.

Lastly we were taken into the office, where Mr. Done amused us by accounts of some of the comicalities of photography as evinced by a few of the negatives sent to him. One gentleman, he told us, had sent him a number of whole-plate negatives *which had never been exposed*, but when respectfully made acquainted with this fact, he replied with great confidence, "Oh! I know they are all right, for some years ago I had a lesson three-quarters of an hour long from an experienced photographer!" With all this experience he had forgotten to draw the shutter of his dark-slide.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

The Welsbach Gas Lamp—Printing in Natural Colours—Platinum Prints in Sepia, Pestalozzi Red, and Green Tones.

The Welsbach Gas Burner.

THE improvements made of late in the composition and structure of the earthy skeleton or mantle of the Welsbach incandescent lamp have, undoubtedly, greatly increased the efficiency of this burner, and, considering that the expense of putting up the light in rooms where house-gas is at hand is very low, and, on the other hand, the saving of gas with it being considerable, there can be no doubt that, for copying purposes, the new Welsbach light will in many cases be substituted for the electric arc-light by photographers. M. Kowarzik, of the Technical High School of Charlottenburg, has successfully employed the Welsbach gas lamp for printing negatives on various gelatino-chloride papers with and without excess of silver. The printing frame was placed on a level with the flame of the lamp, and at a distance of six inches from it, with celloidin paper (collodio-chloride printing-out paper) exposed beneath a negative of average density. Exposure was complete in twenty to thirty minutes. Exposed beneath a dense negative, the same kind of paper required from forty to forty-five minutes, whilst beneath a thin negative twenty minutes was sufficient. Gelatino-chloride papers, without excess of silver, needed only from fifteen to twenty minutes under the same circumstances, whilst with platinum paper, exposed beneath a normal negative, a print could be developed only after 3½ hours, and beneath a denser negative after from 5 to 5½ hours. It may be mentioned that a Belgian photographer obtained a print on aristotype paper, without development, in an hour, at a distance of four inches from the same illuminant.

Printing in Natural Colours.—In the last number of the *Phot. Mittheilungen*, Prof. H. W. Vogel controverts the theory set up by Mr. Hruza (see p. 243), that in the process of printing in natural colours the colour screens and the pigments should be complementary. The selection of the complementary pigments, he states, will always be an entirely arbitrary one, and for that reason the process of printing with the three primary colours would be brought back by this theory to the state which it occupied sixteen years ago. Prof. Vogel gives the following definition of his own theory. It is well known that an ordinary (black and white) photographic print is produced by the aid of light on sensitive paper which blackens in the light, from a negative on which the black tones of the object are represented by places where there has been no chemical action. In like manner for the production of the copy in yellow in the process of printing in natural colours a negative plate is required, on which the yellow light has *not* acted; and for the production in red, a negative on which red has *not* acted. In short, the pigments and the natural colours which have acted upon the sensitive film of the plate are in opposition to each other. The author then describes how he succeeded in finding out these "contrary" pigments. For the production of colour-sensitive surfaces which are destined to be exposed behind a red, a yellow, or a blue glass respectively, plates should be obtained by certain light-sensitive dyes, which absorb the corresponding red, yellow, green, or blue rays. If a plate is to be rendered sensitive to red, it should be stained with a dye absorbing red light—for instance, with picrate green or chlorophyll ; if, however, it is to rendered sensitive to orange-yellow, it should be treated with a dye absorbing orange-yellow light, such as blue cyanin. Now, it will be evident *that each colour is exactly complementary to the rays which it absorbs.* The negative stained reddish-yellow by cyanin in order to sensitise it for orange should, therefore, be printed on a collotype plate, and the latter inked up and printed with cyanin. From that it follows that the pigment should be (spectroscopically) identical with the sensitiser used to make the plate sensitive to the corresponding colour. A beautiful specimen of chromo-collotype produced by three colour-plates (reproduction from an antique carpet of the Royal Industrial Museum of Berlin) forms an interesting and instructive illustration to the above-mentioned article. What we have to object to in the chromo-collotype specimen—at least, to the copy which is in our hands—is that the "registering" of the colours is not very exact, the yellow colour-plate projecting at the edges of the carpet in a width of at least one millimetre.

Platinum Prints in Sepia, Bartolozzi Red, and Green Tones.—If a finished platinum print, obtained by cold development on platinotype paper, is placed in an ordinary uranium toning bath, the black colour of the image will acquire a brownish-violet tone, which, however, even in the case of a prolonged action of the bath, does not change into the well-known "Bartolozzi red" tone. The latter may be produced by the following method, described by Dr. Strakosch in the *Phot. Rundschau* :—To 1000 c.c. of the developing solution, which is used for platinotype paper with cold development, from 100 to 200 c.c. (in some cases even more) of a 4 per cent. solution of perchloride of mercury is added. The platinotype is printed sufficiently deep, when it is developed in the above developing bath. The prints will acquire in it a brown tone. After fixing them as usual in hydrochloric acid, and after they have been very thoroughly washed, they are placed in the following uranium toning bath :—

Water	500 c.c.
Uranium nitrate	5 grammes.
Potassium ferricyanide	1 gramme.
Glacial acetic acid	30 grammes.

In this bath the prints will attain at first a fine sepia tone, which will gradually become more and more reddish, until at last the Bartolozzi red will be acquired. Various tones may, therefore, be produced according to the time for which the prints are allowed to remain in the bath. As soon as the desired tone is obtained the print is washed for about ten minutes in water which has been slightly acidified by acetic acid, when it is rinsed for a very few minutes with clean water. To produce green tones, the red-toned prints should be treated with a dilute solution of chloride of iron. In this bath the tone will change at first into grey, then into olive-green, and finally into a brighter green. The prints are then placed for a short time in water which has been slightly acidified with dilute hydrochloric or acetic acid, which will remove the excess of ferric salt. If the prints are allowed to remain for a rather long time in water which has not been acidified they will lose their colour, but in such a case the green tint can be easily restored by immersing the prints in ferric chloride solution.

CORRESPONDENCE.

TOOTING CAMERA CLUB NEW ROOMS.

SIR,—I think that it is my duty to call the special attention of photographers who may reside in the neighbourhood of Tooting, Balham, Streatham, Wandsworth, &c., to the announcement made in this week's report of the Tooting Camera Club--viz., that we shall hereafter have our own meeting and dark rooms, situated in High Street, Tooting (near the tram terminus), being both central and convenient of access. Few of the London clubs have the facilities as we shall soon be in possession of, and photographers who would like to share the same, but are unacquainted with any of our members, should write to me at the undermentioned address. J. F. CHILD, Hon. Sec.

Harzville, Leigham Valley Road, Streatham, S.W.

THE WORLD'S FAIR.

SIR,—The Society of Amateur Photographers of New York desire to extend the hospitality and use of their rooms to all amateur photographers who intend visiting the World's Fair at Chicago, and who will pass through New York during the coming summer. Will you kindly give the above invitation publicity in your journal? T. J. BURTON.

No. 113, West 38th Street.

SPEED DETERMINATION

SIR,—In Mr. Williams's remarks respecting determination of speed of plates by the Hurter and Driffield method, made before the London and Provincial Photographic Society, there occurs a little inaccuracy conveying a wrong impression. Mr. Williams says :

"To this correspondence I replied briefly, to the effect that I should abide by my experiments, and such was the courage of my own opinions that I offered to submit everything to a disinterested jury, and I further offered to repeat any individual experiment such jury might select. *To this challenge none of my dissentients have responded.*"

In Marion & Co.'s letter to Mr. Williams, published February 10th, they say :—

"Knowing the value of the system from more than twelve months' daily working, we are most desirous of offering the utmost facilities for its trial. We should be pleased if *Mr. Williams or any committee of experts would take the matter up with us.* We invite Mr. Williams to favour us with a visit at Southgate, and, in conjunction with our Mr. Cowan, practically test the speed numbers."

Mr. Williams could scarcely expect us to respond to his challenge when he himself has not cared to accept ours, which was *issued a week previous* to his own. We still leave our challenge open for Mr. Williams's acceptance with any committee of experts nominated by the Society before whom Mr. Williams's paper was read. Marion & Co.

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PROCEEDINGS OF SOCIETIES.

The Photographers' Benevolent Association.

Meeting held in the Rooms of the London and Provincial Photographic Association, Thursday, April 20th.—Mr. Robert Beckett in the chair.

Two applications for assistance were considered by the Committee. In one case, a loan of £5, together with a further sum in instalments, was granted. In the other case, the Committee instructed the Secretary to refer the applicant, who was a foreigner, to the consul of his own country, and to state that his case was one which the Committee did not see their way to relieve. The Rev. H. G. Morgan and Mr. J. G. Hudson were accepted as subscribers, and Mr. Walter D. Welford was elected life governor.

The Secretary reported on the fact that the proceeds of the Sandell Exhibition had been devoted to the Benevolent, and announced that Mr. Sandell had expressed his willingness to loan the whole of the pictures from that exhibition, and to supply a number of catalogues gratis to any provincial society that would organise an exhibition in its own town, and give the proceeds to the Benevolent Association.

The following subscriptions and donations were acknowledged:—Rev. H. G. Morgan, 5s.; "Atticus," 10s. 6d.; *Photographic Review of Reviews*, Charitable Fund, £2 2s.; Hastings and St. Leonards Photographic Society, £2 2s.; *Photography* Prize Competition, 6s.; Mr. J. G. Hudson, 15s.; Mr. T. Bedding, 10s. 6d.; and Mr. R. Hayward, 7s. 6d.

Putney Photographic Association.

At the ordinary meeting, held at the Society's Rooms, Mr. H. Faulkner in the Chair, Mr. S. Herbert Fry delivered a lecture on the "Sandell" plate.

Mr. Fry said it would not be necessary to take up the time of the meeting by demonstrating the development, as the process presented no special features as compared with any ordinary plate. The "Sandell" plates were made of two kinds, the "General" and the "Especial," the former having two films, the latter three; each film was of a different speed, the slowest being nearest the glass in each case. For most purposes the "General" would meet all requirements: the "Especial" was necessary only for very difficult subjects such as dark interiors with windows opening on a bright light, where the shadows would require exposure hundreds of times longer than the best lighted parts. In manufacture, the glass plates are first coated with an extremely thin film of the slower emulsion, which is allowed to become quite dry before the rapid films are added, each in turn being allowed to dry before the next is applied. The films were thus not in chemical or even mechanical contact with each other. Mr. Fry explained that the action of the films would be as follows:—The rapid film would receive the first impression of the image through the lens; in case of prolonged exposure this film might be correctly exposed for the deepest shadows, and more or less over-exposed for the other parts; the developed film would therefore show full details and correct density for the shadows, the other parts would show the usual symptoms of over-exposure, being practically clear glass in the highest lights. Now, as regards the second film, each being very thin, the light will penetrate the first and act on the second, and the latter being slower will probably be about correctly exposed for the half-tones; on development the shadows would be found to be nearly clear and the sky, probably, somewhat lacking in density. To the third film somewhat less light will have penetrated, and, being slower than the others, all parts of the surface except the high-lights will be under-exposed, and, therefore, develop up more or less as clear glass, whereas the high-lights will have full density. When the three films are now considered as a whole, it will be found that the resulting negative will have full detail in the shadows due to the first film, being backed in these places by the clear glass of the second and third; the second film will give detail and density in the half-tones, the first helping it as regards detail and the third as to density, in case of it having been, perhaps, a little over-exposed. The third film will give the required density to the high-lights, the first and second having lost most of it owing to over-exposure, but will, on the other hand, retain detail. Obviously the two extremes to be guarded against are exposures so short that the first film is not sufficiently acted upon, or so excessively long that even the last film is over-exposed. The first contingency is the most likely to happen, although it is claimed for the plates that they are as rapid as any in the market. Ever-exposure is almost impossible, as the latitude with the triple and even with double film is simply enormous. As an example it was mentioned, in the course of the discussion which followed the lecture, that three plates had been exposed by a member of the Society on the same subject, one receiving $\frac{1}{20}$, the other 1, and the third 20 seconds exposure, the range being 400. The three plates were developed in the *same* developer, and gave very presentable negatives. Mr. Fry stated that, by modifying the developer, even this remarkable range might be exceeded, without materially affecting the resulting negatives. It might at first appear that there would be little or no advantage in using these plates for very short exposures, as probably only the rapid outer film might be brought into action; this was, however, not the case, as the entire absence of halation gave a roundness and vigour to the image which could not be obtained by any other plate to the same degree, even when backed in the most effective manner. In order to take full advantage of the qualities of the plate, it was in contemplation to use so rapid an outer film as could not possibly be worked on any ordinary plate, as such a film could not by itself be made to give the necessary density by any known developer, the difficulty of obtaining density being at present the obstacle which limits the speed of plates coated with only one emulsion. Mr. Fry gave the formula sent out with the plates, and remarked that they also appeared to work very well with others in general use. The particular formula had certain advantages, among others, that it did not soil the hands; it was well worth a trial, and he urged its adoption. The development did not present any special features; it might with advantage be carried on tentatively, starting with a somewhat weak developer and increasing the strength as required: by this method the top film was kept free from fog, and progress could be more readily judged. If the developer happened to be too active, the image on the first film might flash up and fog over as usual with over-exposure, but this by no means meant that the negative would be a thin or poor one. Development should be proceeded with until the necessary density was obtained, and this could be judged by transmitted light in the usual way, and the worst that would be found to have happened would be that the outer film might be slightly veiled over, but this would not affect the printing qualities of the negative in any other way than slightly retarding the operation. It was necessary to use a strong fixing-bath—8 ounces of hypo to the pint of water was recommended. Mr. Fry exhibited specimen prints and some of the negatives from which they were taken, both "General" and "Especial," and they fully bore out the claims made; the interiors, many of which were taken under extremely trying conditions, were entirely free from every trace of halation, full detail was given in the deepest shadows and highest lights, and the half-tones and gradation were excellent; there were also a roundness and relief which are too often absent from prints from ordinary negatives. Snap-shots, showing people and animals in rapid motion, yachting, wave studies, and scenes from the seaside, full of life and animation, clearly showed the capacity of the plates as regards speed; their sharpness proved beyond argument that the shutter had been used at a high velocity, and their technical excellence was a tribute to the high character of the other qualities of these plates.

Hackney Photographic Society.

Ordinary Meeting, Tuesday, April 25th.—Mr. J. O. Grant in the Chair.

The Hon. Sec. invited members of the Society to join the new Central Club.

Mr. T. J. Jones was nominated for membership.

From the question box: How to intensify an under-developed hydroquinone negative?

Mr. S. Beckett, said use acidified mercury chloride, followed by cyanide of silver and potassium.

The Chairman said he would use the mercury chloride followed by ammonia; had not found negatives fade.

How to strip a film without enlarging?

The Hon. Sec. thought alum would prevent expansion after stripping.

Mr. R. Beckett suggested methylated spirit.

Work was then shown by Messrs. S. J. Beckett, R. Beckett, Sodeau, T. H. Smith, Moore, Perry, Nunn, Dean, and Cross.

Owing to some discussion having ensued at the previous meeting respecting the power of getting density with amidol, Mr. Sodeau was called upon to demonstrate that density was easily obtainable. The Hon. Sec. had requested some negatives to be brought up, having received varying exposures, unknown to Mr. Sodeau, and the latter, with amidol used dry and 20 per cent. sulphite of soda solution, speedily and successfully obtained plenty of density. He said in over-exposure he would use more amidol, advocating, too, the use of citrate of soda (20 per cent. solution), ½ dr. to the ounce.

Tooting Camera Club.

Committee and Ordinary Meetings held on April 14th.—Mr. Anderson, President, in the Chair.

The report of the Sub-Committee *re* headquarters was read to the General Committee, and after some discussion it was decided to submit the matter to the ordinary meeting, which was done, and after being thoroughly debated, the report was unanimously adopted. So that, within a week or two, as soon as the necessary alterations can be completed, the Club will be in exclusive possession of a large meeting room, capable of holding 100 persons, a good-sized dark room, and a corridor fitted with shelving, and containing plenty of room for lockers. An adjoining flat will also be found useful for printing and camera work, as likewise the meeting room itself, being exceptionally well-lighted. The rooms will be at the service of the members at all times.

The Sub-Committee—viz., Messrs. Beckett, Child, and Dollery—were asked, and undertook, to carry out the necessary arrangements.

Messrs. Alexander, Buchanan, C. Sorrell, and Nock were elected active members, and Messrs. Frazer, Mellhuish, Morden, and Newman honorary members, making a total of eight new members for that night.

Mr. Dollery was then called upon for his demonstration upon Cresco-Fylma, but owing to the lateness of the hour he was only able to give a description of the process, reserving the practical demonstration for a future meeting. The Hon. Secretary having been asked whether he knew the composition of Cresco-Fylma, stated that he had never seen the preparation before, but judged from the fact that the bottle was coated inside with wax that it contained hydrofluoric acid, and from the appearance of the liquid that some kind of gum was added. He undertook that at the meeting after Mr. Dollery's demonstration he would show the effect of hydrofluoric acid upon gelatine films.

Brixton and Clapham Camera Club.

At an ordinary meeting held at Clarence Rooms, Coldharbour Lane, on the 18th instant, Mr. T. C. Hepworth lectured on "Photography applied to Journalism"—report of which appears on another page. The usual vote of thanks followed, and was carried by acclamation.

The Club decided, subsequently, to affiliate with the Photographic Society of Great Britain. A show-case, kindly sent by Messrs. Taylors & Hobson, was inspected, and after other business the meeting was closed.

Photographers living in the locality are earnestly requested to join the Club, which, although it holds its meetings at the rooms of a political association, is in no way connected therewith. Full particulars may be obtained from the hon. sec., Mr. B. E. Pinder, 7, McDowell Road, Camberwell, S.E.

Derby Photographic Society.

The usual monthly meeting of the above Society was held on Tuesday, the 18th inst., Mr. A. B. Hamilton occupying the chair.

The Chairman announced that two delegates were required for the Photographic Society of Great Britain in connection with the Affiliation scheme.

Several members were nominated, and after a ballot had been taken, Messrs. R. Keene and T. A. Scotton (hon. sec.) were declared elected.

Three new members were elected—viz., Messrs. W. Glen, J. Chawner, and J. Sandoz.

The question of the outdoor summer meetings was next brought forward, the Committee having arranged for two medals (silver and bronze) to be offered in competition for the best pictures taken at these excursions by amateurs. It was also thought desirable to commence a series of outings on Wednesday afternoons for the benefit of those members who could not attend on Saturdays

Mr. R. Keene was then called upon to give a paper, entitled "A Six Days' Photographic Tour through Derbyshire." This tour took place between twenty and thirty years ago, when the party had to take with them a huge cart, with rope attachment, and which they had great difficulty in pulling about from place to place. Commencing at Rowsley (where the Midland Railway then terminated), the route taken was by Baslow, Eyam, Hathersage, Castleton, Miller's Dale, and back to the starting place. Mr. Keene illustrated his paper by 170 lantern slides, most of which had been taken on this excursion. These were very beautiful examples of his work. Altogether a very pleasant and instructive evening was spent, and at the close a very hearty vote of thanks was accorded to Mr. Keene.

Ashton-under-Lyne Photographic Society.

On Saturday, April 22nd, the members of the above Society, numbering seventy ladies and gentlemen, had their first ramble of the season, to Warple. They were met at the station by Joel Wainwright, Esq., a resident of that delightful neighbourhood, who conducted the party through private grounds to some of the oldest buildings and most beautiful scenery for which Warple is noted. He made the ramble very interesting by his description of the places of historic interest, interspersed with much humour and poetic language. The party took a great number of views, and finally finished up the afternoon by Mr. Wainwright's kind invitation at "Finchwood," where he had provided tea and other refreshments on the lawn.

Before leaving for the train, a most hearty vote of thanks was given to Mr. Wainwright for his kindness during the afternoon.

There were thirty-six cameras in the company, and over 150 plates were exposed during the afternoon.

British Astronomical Association.

At the fifth ordinary meeting, held at Barnard's Inn Hall on the 29th ult., two papers of photographic interest were read and discussed. The first was by Mr. Evershed, upon "Some Recent Attempts to Photograph the Solar Prominences." On the publication of Professor Hale's discovery that the calcium lines were brightly reversed in prominences and faculæ, Mr. Evershed had altered his spectroscope so as to obtain monochromatic images of the entire disc in H or K light. The results he had obtained agreed in all respects with Professor Hale's recent work. His first successful photograph of the entire disc had been obtained on February 19th, using the grating belonging to the Association. This showed an enormous mass of faculæ surrounding and following a large spot. He had obtained fairly successful photographs of prominences by taking a portion of the spectrum, including F, or better, H and K, and opening the slit as wide as possible. Using a semi-circular slit, he had found it possible to photograph in this way 90° or more of the limb, showing chromosphere and prominences. Mr. Evershed proposed during the year to try and photograph the prominences by the transit method, limiting the field to a small portion only of the limb, and by this means he hoped to get sharp and dense negatives of single prominences. He then proceeded to describe the apparatus he used, and, in concluding, thanked the members for the use of their grating.

Mr. E. W. Maunder thought that the members of the Association would be sure that their grating could not be in better hands than Mr. Evershed's. The whole of the little instrument Mr. Evershed had been describing bore evidence of his skill, as he believed that he had told him on one occasion that, with the exception of the lenses and the prisms, it was entirely constructed by himself. That Mr. Evershed, with such small instrumental means at his disposal, should be following so closely the work done by Mr. G. E. Hale, with all the resources of a great observatory at his back, was a matter for great congratulation. Mr. Evershed had stated that he found the prominences showed the same shape on C as on H and K. He would like to ask him if he had found that this was also true of F.

Mr. Evershed, in reply, stated that he had found that the photographs showed the same form on F, C, H, and K; but H and K, having so much greater relative brightness, the prominences seemed to be more extensive.

Mr. E. W. Maunder remarked that one would naturally expect that C and F should give the same form, as both lines were due to hydrogen, although apparently they did not always do so; but as H and K were due to calcium, we might expect them to give forms differing from those seen on C.

Mr. Evershed said that the forms given by F often seemed to be different; but he thought it was merely due to their lesser brilliancy. With regard to photographs of the entire disc, he had obtained several at different times; but although they showed the faculæ, the motion of the slit was somewhat irregular, and therefore there were shown vertical lines on the plate. There was no difficulty in obtaining these photographs; it only remained to secure the necessary uniformity of motion to the slit.

Mr. Schooling subsequently described a dynamometer constructed by himself. He first described the ordinary Berthon's dynamometer, which consisted of a sheet of brass with a V-shaped piece cut out of it, with the edges divided, so that the width of the V at one division was greater than that at the next by $\frac{1}{500}$ in. By means of this instrument the diameter of of light the disc produced by the object-glass is measured, and comparing that with the diameter of the object-glass, the magnifying power of the eyepiece was determined. It had occurred to him that this could be done far more cheaply and accurately by photography. He first drew a V on paper, and divided it up by lines differing in length by $\frac{1}{100}$ in., and then divided up the space intervening between each two consecutive lines into ten by dots placed along the centre line of the V. This he drew out on a large scale, and reduced it to the exact size by photography. In this way for a penny it was possible to obtain an instrument which read to $\frac{1}{1000}$ in., instead of paying 10s. 6d. for one which read only to $\frac{1}{500}$ in. Mr. Schooling offered to supply one to any member who would care to have it.

Capt. Noble pointed out that there was a theoretical objection to this form of instrument, and that was that it was not the diameter of the circle which was measured, but the length of the chord joining the points where the edges of the V touched the circle.

* * *

At the Royal Institute of British Architects, on Monday week, Mr. H. W. Burrows (Associate) read a paper on "The Examination of Building Stones," illustrated with lantern slides prepared from microscopical sections of building stones.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Secretary.—In misty weather, and under the warm light of late afternoon there is certainly a great advantage in doing so. On your lists we most highly esteem I. and A., but it is right to say that, with regard to the second table, A. is the only one of which we have had much experience.

Moke.—Stephen's ebony stain is doubtless the thing meant. It flows very easily from the drawing pen, and is equally suitable for brush work. In one respect it is not so good for process drawings as India ink. The lines cannot be erased or crossed with lines of Chinese white, for the stain comes up through the white pigment and destroys it. There are other inks advertised for this kind of drawing, but we have not had experience of them.

O.—Professor Boy's flying bullet photographs have been reproduced in the *Journal* of the P.S.G.B. You can also find reproductions of them in *Nature* of March 9th and following numbers.

B.—We should recommend the use of backed isochromatic plates. A tube of burnt sienna (water colour) will furnish a good backing for many dozens of plates, and it is best laid on with a piece of fine sponge. If you prefer to mix you own colour here is a formula :—

Powdered burnt sienna............	1 oz.
Gum arabic	1 oz.
Glycerine	2 drams.
Water	10 ozs.

H. W.—Woodburytypes printed with a margin for book illustration are known as Woodbury gravures. You can obtain the required particulars of the Woodbury Company (Messrs. Eyre & Spottiswoode).

St. George.—Dragon's blood is a gum which exudes from several species of tropical trees. It is not used in photography—if we except its employment in dusting photozinc plates so as to form a resist after the first etching. For this purpose it must be of very fine quality.

Collotype.—1. The best book upon this subject is by Dr. Julius Schnauss, a translation of which is published by Iliffe & Co. 2. The develled gelatine process is now seldom practised, for it is more difficult and uncertain than other methods.

F. F.—Frilling is now such an unusual attribute of gelatine plates that we should be inclined to think that there is some local cause for it in your case. Rub a piece of solid paraffin along the edges of the plates just before development. This is one of the safest and cleanest cures for the malady.

Onus.—We are unaware whether the idea is patented. Certainly several makers of cheap hand cameras adopt it, but whether by mutual agreement we cannot tell you.

H_2O.—The water is abnormally hard. Use filtered rain water, or distilled water. If you cannot get either you must allow the precipitate to settle and decant the clear liquid.

V. B. A.—Chloroform is not difficult to make by anyone accustomed to chemical manipulations. You will want a still and a Liebig's condenser, fresh bleaching powder and alcohol. For details we must refer you to Roscoe, or or some other standard work on chemistry.

Jane.—We are making inquiries and hope to communicate with you by letter in a few days. We fear that the scheme is a bogus one.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

7,341. William Speirs Simpson, 166, Fleet Street, London, "Improved Means for preserving Paintings, Prints, and Photographs against Atmospherical Deterioration."—*10th April*, 1893.

7,343. Charles Klary, 18, Buckingham Street, Strand, London. "Improvements in and relating to the Colouring of Photographic Prints, Transparencies, and Negatives."—*10th April*, 1893.

7,443. James Davis Burton, 2, Albion Terrace, Lewisham, London. "An Improved Method of Photographing Persons or Objects in Motion, and Improved Apparatus for effecting the same, and Improved Apparatus for exhibiting the same, and for applying it to the Optical Lantern."—*12th April*, 1893.

7,480. William Phillips Thompson, 6, Lord Street, Liverpool, "Improved Objective for use in Photographic Cameras." (Adolf Steinheil and Rudolf Stenheil, Germany.)—*12th April*, 1893.

7,481. William Rice, 23, Southampton Buildings, Chancery Lane, London, "Improvements in Photographic Cameras."—*12th April*, 1893.

7,656. Abraham Strauss-Collin, 28, Southampton Buildings, Chancery Lane, London, "Coin-freed Apparatus for the Automatic Production of Photographs." (Alexander Hahn, Germany.)—*14th April*, 1893.

7,680. Richard Crome and Henry Nicholls, 25, Williamson Street, Liverpool, "An Automatic Safety Bar and Ejector for use in Hand Cameras."—*15th April*, 1893.

Specification Published.

6,355. *1st April*, 1892.—"Changing Box for Photographic Plates."—C. Grundmann, Leipzig, Germany.

After fixing the changing box to the camera a safety spring attached to the lid is let down and bolted. and a roller slide shutter moved in the direction towards the bag attached to the box. In this manner the front plate is laid free to be exposed. and at the same time the frames which carry the plates or films in the box moved so far forward by means of the pressure of a spring, that the front frame will be in focus of the lens and in the position which the shutter has previously occupied. If the shutter is moved in the opposite direction when the exposition is ended, the front frame with the exposed plate will be simultaneously pushed through a slot in the front of the bag, from whence the same can be moved by hand through a rear slot into the changing box behind the other plates. By means of a ruby glass let into an opening of the lid, the succession of the frames which may be provided with consecutive numbers can be observed.

Printed copies of the full specifications of above patents may be obtained by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

PATENT OFFICE LIBRARY

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1809. MAY 5, 1893.

NOTES.

PROFESSOR BARNARD, of comet fame, takes exception to our note in the issue of February 10th, referring to the disputed point—whether the comet discovered on a plate exposed by him at the Lick Observatory, on October 12th, 1892, was the first instance of a comet found by means of photography or not. Professor Barnard claimed that it was. Mr. Ranyard, speaking at a meeting of the Royal Astronomical Society, said it was not, but that he believed the comets of 1871 and 1882 found on the plates while photographing the corona were entitled to the honour. All that we did was to sum up the statements on both sides; and as Mr. Ranyard was present during the photographing of the eclipse in 1882, and Professor Barnard was not, it seemed reasonable to assert, as we did, that "the honour of thus discovering a comet by means of photography would seem to rest with England." Professor Barnard says this "is entirely a too hasty conclusion, and one not warranted by the facts, and, furthermore, it is one that will not hold in astronomical literature." This may or may not be so, but in any case it is clear that Professor Barnard has no grievance against us, but against Mr. Ranyard, upon whose specific statement we based our observations.

IT would appear from an observation made by Dr. Gill at the last meeting of the Royal Society of Edinburgh, that the power of a photographic plate to reveal that which is invisible to the eye is mainly a question of exposure. The photographic plate, said Dr. Gill, had the marvellous faculty of absorbing the radiant energy of the stars, which at first appeared to produce no effect on the molecules of the film, but gradually an impression was made, and if the exposure was continued for a sufficient length of time, features which were absolutely invisible began to be developed, and objects were ultimately photographed which no human eye ever would see in the ordinary way.

PHOTOGRAPHIC periodicals are growing. The latest is the monthly journal of a young photographic society in Algeria called the Photo Club of Constantine. Algeria seems to possess a good many amateur photographers; for, although the Society is but of recent formation, it already numbers seventy-three members. The interest which photography excites all over the world suggests that it might form the basis of a species of freemasonry, which would be exceedingly useful to travellers. Why should there not be an International Union of clubs and societies worked on the principle of freemason lodges so far as the spirit of brotherhood is concerned?

THE "Photographic Survey," started by the Manchester Amateur Photographic Society, embodies an idea which might be well taken up by other societies. The current number of the *Photographic Record*, the journal of the Society, urges the members to make use of the coming season to complete the work, which embraces "a photographic survey of Manchester and Salford, its object being to obtain a photographic record of the buildings, streets, characters, &c., of Manchester and Salford as they now exist, and to secure as memorials of the past a representation of the few historic buildings and features that remain in and about the city." Equally excellent is the intention to present permanent copies of the prints to the reference libraries of each place for the use of the public.

THE Free Library movement is spreading so widely that before long there will be scarcely a district without an institution of this kind, which seems peculiarly suitable for the deposition of topographical photographs of interest. It is doubtful whether the suburban amateur photographic societies of London are sufficiently alive to what they might do in this direction. Old landmarks are constantly being removed—witness, for instance, the wholesale demolition of old Chelsea in connection with the Cadogan Estates improvements—and unless photography preserves a memento of these "bits" of by-gone times they disappear and are forgotten.

MESSRS. TAYLOR, TAYLOR, & HOBSON inform us that the pictures exhibited at the Crystal Palace by Mr. Warnenke, of Glasgow, for which a gold medal has been awarded, were taken direct with their large group and portrait lenses.

PHOTOGRAPHERS who are contemplating the re-decoration of their studios or reception rooms should see the specimens of decorative wood panelling which are being exhibited by Messrs. D'Oyly & Co., of 405, Oxford Street. These ornamental panels are made of three thicknesses of wood, the grain of the middle portion running at right angles to the others, so as to give great strength in combination with lightness. The surface layer is a veneer of figured wood, and has all the appearance of the solid panelling used in the best houses, while it is only about half the price. The panelling is easily fixed to the wall by battens and pins, and its appearance is handsome in the extreme.

AN attractive feature of the *English Illustrated Magazine* is a series of articles on "The Theatres," by Mr. William Archer, the first of which will be illustrated by some capital portraits of Miss Ellen Terry and Mr. Irving in the characters of Rosamond and Becket, by Mr. Graham Robertson.

WE have before intimated that there are signs of the revival of the art of miniature painting, and quite a large collection of such works, of very high quality, shown at the present Academy Exhibition testify to the fact. At one time it was thought that photography had killed miniature painting, but this is evidently not the case, and we are glad of it.

WHERE photography comes into real rivalry with the miniature painter is in the production of ceramic portraits, and some of these are certainly of extreme beauty. When one of these is carefully painted it is very difficult, if not impossible, to tell that its basis is a photograph.

MESSRS. ARTHUR SCHWARZ & CO. inform us that they have recently appointed the following firms to act as their agents in making known the developers with which their name is associated:—For Birmingham and district, Messrs. Southall Bros. and Barclay; for Bradford and West Yorkshire, Messrs. Percy Lund and Co.; for Edinburgh and East Scotland, Mr. A. F. Baird; and for Manchester and district, Messrs. James Woolley & Sons.

THE recent report that painters intended to place certain restrictions on the reproduction of their works by photo process is evidently premature, if we may judge, that is to say, from the number of artists who have already permitted their Academy and other pictures to appear in this popular form. The *Graphic* special number, containing two hundred reproductions, appeared on Monday, as soon as the Academy opened its doors, and Cassell's "Royal Academy Pictures" followed close upon its heels.

MESSRS. MORGAN & KIDD'S new catalogue is embellished with a collotype cover, designed and executed at their Richmond works. This is quite an artistic triumph, and is an eloquent testimony to the good quality of the work which they turn out. The designer has been so lavish with his flying Cupids that one is inclined to think that some little play of words was in his mind with reference to the style of the firm.

MESSRS. ELLIOTT & SON, of Barnet, illustrate their last monthly circular, the *Photographers' Record*, with a pretty little cloud study, printed in carbon. The remarks accompanying the picture on cloud studies in general are written by one who knows what he is talking about.

CRIMINALS who have been photographed in prison, and are relying upon the fading of the prints rendering identification difficult, will be disappointed. It has been decided to adopt the platinum printing process in all Her Majesty's prisons, so as to secure a permanent record of the features of the unwilling sitters.

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A PAPER on "The Use of Photography in its Relation to Architecture" was read before the Society of Architects, recently, by Mr. William Allport, F.S.I. Mr. Allport referred, as an example of fine bromide printing, to the view of the river at Bruges, taken by Prof. Adams, F.S.I., in 1891.

THE WIDE ANGLE CLUB.—V.

It is with great pleasure we chronicle the complete success of the Club's first venture in the smoking concert line. There was capital attendance, the large dining-room of the hotel in which the interesting event took place being well filled by the members and their friends.

The Mayor, in according the hearty welcome of the Club to their visitors that night, said: "It was a proud day for Bumbletown when this great Club was formed, and it is a great night for the Club to have the—er—noble patronage of its citizens. (Frantic applause.) On behalf of the Club, and on my own behalf, I greet you. As the ornament—er—responsible head of the Club we—that is, I—hold out all our hands in welcome. (We do.) The Club has—er—no selfish aims, the good of one another first, then the good of photography and—er—of mankind generally we seek for. I take this the first opportunity of appearing before you as head of the photographic spirit of Bumbletown to commend the Wide Angle Club and its good work to your notice. (Hear, hear.) Where is the man that can point the finger of scorn at us? (Hear, hear, from the far end of the room, and great laughter.) If there be such a one let him do the pointing on this spot, on the native hearth of the Club. What did Shakespeare say when——"

The lanternist having whispered in the ear of the Mayor, he resumed: "The lights will now be turned down for a few minutes, to enable the gasman to complete his circuit." Then followed a violent struggle with the oxy-hydro-pro-bono-publico-gas-lamp at the back of the room. For some time no light could be got upon the sheet, or, indeed, upon anything. "Oh, it's all right," the lanternist assured the members: "just have a little patience." Finally he discovered that the front of the lens was covered up, and, upon letting down the flash-shutter a stream of light flashed right upon the Mayor seated at a table a little to the left of the sheet. It was rather unfortunate, too, that he should just be taking a good pull at a glass with something hot in it. Next the light went up to the ceiling, and a member suggested that it was rather too high, but, lowering it suddenly, it illuminated the bald head of a gentleman two or three seats from the lantern.

"It's a regular search-light, isn't it?" said the lanternist, good-humouredly; "but I'll get it on to that sheet or bust."

Mr. Put-out suggested that if the lanternist stood beside the sheet, perhaps the lantern would of its own accord follow its master.

Finally a tiny disc of light appeared on the sheet amidst great cheering, and, after another violent struggle to get a clear and even disc, watched by the members with great interest, the lanternist announced to the chair, "Sir, I am ready."

The Mayor said they were "going to have a treat, an intellectual feast, a flowing bowl—er—I mean a flow of soul," and he called upon Mr. Southend to commence the first part of the programme.

Mr. Southend, with one broad smile from the top of his hair to the bottom of his beard, resplendent in an enormous expanse of white shirt, literally spread himself, evening dress and gold chain, all over the platform.

"Ladies and Gentlemen—oh—er—I beg pardon. You know I am so accustomed to addressing the dear creatures of the other sex, the sweet darlings. My esteemed friend, Mr. Catlegs, knowing that I have lectured all over this country, meeting everywhere with the most unbounded enthusiasm, and that my knowledge of photographic matters is immeasurable, has asked me to kindly describe his slides for him. It is with the greatest possible pleasure I respond to the request of so eminent a worker, for of all the slides I have ever seen, these are far and away the most beautiful. (Applause.) I wish there had only been ladies here, dear pets, fair creations of beauty, to feast their eyes on other loveliness than their own for the nonce. But no matter. I must explain that these slides are of course not my own work, for it is my proud boast that, in spite of my intimate knowledge of art and photography generally in their innermost recesses, I never lower myself to do any common photo work. I believe in the power of speech, the tone of a neat compliment, the little bits of humour, poem, or quotation, so deftly interweaved in the lectures I give. We will proceed now, if you please, Mr. Careful Lanternist, with the first picture of Norway." (Cheers.)

Some little trouble ensued with the carrier, but eventually the first picture appeared. Mr. Southend caught hold of a convenient line prop, and started off with his notes: "This is a picture, my de-ar friends, of considerable interest, and reflects the greatest credit upon——"

The laughter that had been gradually accumulating all over the room led Mr. Southend to look on the sheet. This is what he found:—

> Members are reminded
> that their Subscriptions
> are now due.
>
> *By Order.*

"Ahem, gentlemen, one of my little jokes, but I shall be very glad if the lanternist will take just a little more care with the slides."

The first few slides went along nicely, except one or two were upside down. Then a flock of geese came on the scene.

Mr. Southend: "The title of this picture is not given, but I think it is a flock of geese. Still I am never at a loss, and so, when no description is given me, I fill in some appropriate remark. Birds of a feather, you know, flock together, you know."

A member pointed out that the largest goose in the picture was just about the size of the lecturer. Great laughter ensued, much to the amazement of the platform orator, who bowed repeatedly.

Mr. Southend: "The next picture, my friends, is a picturesque view of the Trollhallan Falls. I cannot see the falls myself, but you may be able to tumble to them. And the next picture is a church at Hardangerfjord. It is not a pretty church outside, perhaps, and I don't know which way it is, unless you are looking at the south end —ahem—of it. But I have no doubt many an ugly exterior contains within it all that is lovely, peaceful, and pathetic."

A little later on Mr. Southend introduced a study of a native, which he said "showed just what the Norwegian was like." True the slide was upside down, but he said "that was a little way they had," and he glared at the operator, the latter glaring back. Just then the lights went up and the concert commenced, the following being the programme :—

Song, "In Sandal Shoon".........	Mr. Jingle.
Song, "Spirits from the Vasty Deep"	Mr. Wailor.
Recitation, "The Fuzzy School in three Gasps and a Chuckle".................	Mr. Jacksdaughter.
Song, "I fear no Foe in Metric System"	Capt. Nehab.
Glee, "Oh, for a Mansion in Fleet Lane"	Messrs Brick, Division, and Reading.
Recitation (pathetic), "The Biggest Circulation"	Mr. Stiryou.
Song, "I lub a lubly Plate, I dew"	Mr. Arch.
Comic Song, "The Plate that stuck"	Mr. Fordwell.

Each item was vigorously applauded, and the performance, whether of song or story, was excellent in every way.

The second part of the lantern show ended rather abruptly when Mr. Southend got angry with the lantern operator, and the latter shut off the gas, and said, "Go on then without the lantern."

At the close, a member asked why the President had not given his promised paper upon "Spirits, and how to take them," and was told that absence at the Camera Club Conference was the cause. He thereupon desired to move the following resolution :—"That at a meeting (that was to have been held) upon the question of spirits, the photographs intended to be shown by the President bore evidence of being copied from the labels of a well-known firm of distillers, and this Club desires to dissociate itself from any such proceedings, as indicating the erroneous idea of the Wide Angle Club having anything to do with spirits ; it being clearly understood that no imputation upon the *bona fides* of the President is intended by this resolution."

This having been duly carried, the contented and pleased Bumbletonians separated with cheers for the President, the Club, and everybody and everything generally : the only regret expressed being that Mr. Southend's shirt-front covered up so much of the screen and totally hid the Chairman. It was suggested that a sheet was not necessary next time, as the front would do instead.

* * *

Our readers are reminded that the Exhibition of the Birmingham Society opens on Tuesday morning next, and closes on the following Friday evening.

RETOUCHING.

BY WILLIAM PARRY.

I FEEL I must not begin to-night without offering a sort of apology for the brevity and the incomplete state of this paper. I would fain have got off altogether, but have not dared again to mention it to the secretary, as he has already let me off once before. It was my intention to have prepared examples and slides to illustrate it, but I have really had no spare time to devote to slide-making, having been so fully occupied with business lately. On some future occasion I hope to be able to give a more complete and comprehensive paper, with lantern-slide illustrations.

Retouching is the art of improving or doctoring a negative or positive by the aid of a lead pencil, or by the use of a sable brush, and not, as a certain writer on so-called naturalistic photography would have it, when he says it is a process by which a good, bad, or indifferent photograph is converted into a bad drawing or painting. Now I cannot agree with that in the slightest degree. I do not mean to say but that there are many instances where a good negative, without any retouching whatever, would give a finer print than if it were given into the hands of the most competent and experienced retoucher. Retouching, like many other things, is an operation which is very much abused, and has been overdone to an alarming extent. It has been said many times that some operators depend entirely on the skill of the retoucher, caring very little whether his subject is well or badly lighted, thinking all will be put right by the retouching. Now, this is perfect nonsense, for, unless a good and well-lighted negative is put into the retoucher's hands, all the skill and artistic knowledge he possesses will not enable him to make it into a perfect negative. Certainly a badly lighted and defective negative may be considerably improved by judicious retouching and careful printing. Some recommend thin and weak negatives as being the best ; others, again, strong and denser ones ; but from experience I find that the best results are got from negatives that are good all round, both in lighting and everything else. It is, no doubt, true that retouching—that is, a certain kind of the work—has done much harm to photography ; and, unless the operator and retoucher work in harmony together, each striving to get the best possible results, the standard of retouching is considerably lowered.

Retouching is a branch of photography which an amateur does not often attempt. In working upon the negative with the pencil, one of the greatest difficulties to amateurs and beginners is to be able to obtain texture, a process by which much time is generally wasted, and the result very often disappointing. He tries to get a good result, but without knowing how to go about it. I think amateurs are often much puzzled by a too elaborate description of how to do this and how to do that ; whereas, if the thing was put in a more practical form, many would be better able to accomplish more in the way of such operations as retouching and improving the printing qualities of their negatives generally, than they would with such impractical instructions.

It must not be supposed that retouching can be learned easily by taking a course of lessons, any more than drawing or painting can, but can only be attained by careful practice and experience, and the examination of good examples by first-class men. I just intend giving a few verbal instructions to amateurs present, which are in no way meant for any professionals who may be here to-night. The simplest method of all is the working on the back of the negative, and often a very great improvement can be made by doing so, especially in the case of much heavy shadow and want of detail. There are various methods of preparing the back of the negative. A fine quality of tissue paper or, better still, an oiled paper called *papier minerale*, pasted carefully on the back, and, when quite dry, worked over lightly with the pencil on the parts that are too transparent, at the same time cutting out those parts that may be already too dense. I have seen a harsh printing negative yield a good print after such treatment. This answers as well for a landscape as a portrait, and is what I frequently do in practice. If a negative is too weak and wanting in contrast, the high lights can very easily be strengthened by stronger lines with a soft pencil, or crayon can be used.

I believe, some years ago in America, the use of both black and red crayons was recommended for certain kinds of work, but I do not think with much success. Crayon powder is sometimes useful, but more difficult to work. I find, if there is only very little work required on the back of a negative, it is quite sufficient to give a light wash of madder brown in water colour, with a little gum added, on the glass itself. It may seem a difficult operation to spread an even wash of colour on glass; but it is not so, requiring very little practice, only the glass must be perfectly clean and the colour free from grit or dust. In a landscape clouds can sometimes be worked over a thin sky so as to be passable, but I would rather recommend blocking out the sky entirely and printing from a cloud negative. Working with a pencil on the film side is not such an easy matter for the beginner. For this a retouching desk is necessary, which is a piece of apparatus needing little or no explanation. It must have a piece of very finely ground glass, or the coarseness of the grain will be visible through the negative, and will confuse the retoucher. I also would explain that, if the negative be raised up from the ground glass to the extent of about an inch, leaving a little space between the negative and the glass, the grain is destroyed when the eyes are focussed on the part to be worked upon.

I may here give a word of caution with reference to the eyes. On no account practise retouching if your eyes are not strong or suited for it, as the injury done to weak eyesight by persistent retouching, with a strong light on them, is considerable. A good plan, if the eyes are weak, is to cover the reflecting mirror with white paper, which gives a very soft and pleasant light to work by, unless of course, the day is dull. Some use a magnifying-glass for small heads, but that I don't recommend, as the point of the pencil is also magnified, and very awkward to use in consequence; the natural eyesight is preferable, if the eyes are strong enough to bear the strain. With regard to the surface for retouching upon, it is necessary to roughen or abrade the bright surface, so that the pencil will bite. There is great difference of opinion with regard to the proper kind of surface; some prefer using a matt varnish, others prefer rubbing the part with turpentine or powdered cuttlefish bone. There are many other methods of preparing the surface so as to give a tooth to the pencil. I have tried almost all, but cannot find anything better or simpler than powdered resin, applied to the part with the tip of the finger and dusted off with a flat camel's-hair brush. In the days of the collodion negative, a little very fine coal ash, rubbed on very carefully, gave an excellent surface for working on, but great care was required to avoid damaging the delicate film; with gelatine plates it is quite different, as it is surprising what an amount of rough handling they will stand without damage.

The pencils are an important item in the retoucher's outfit. The best for the purpose are either Faber's or Hardtmuth's: HB, HH, and F are the most suitable, although I have known four and six H's to be recommended, which is very absurd. The pencil must be sharpened to a fine point, and, as it wears away quickly, it must be kept in condition by rubbing it gently on very fine emery cloth. The best way to use the emery cloth is to glue a narrow strip on a piece of flat wood.

In beginning work at the desk, sit in an upright position; do not bend or stoop over the work, do not look too closely at the negative, unless you are short-sighted: a far better effect is got by working at a little distance; you will find it more comfortable, and not so tiring.

Before commencing to retouch a head, it is advisable to take a rough print from it, although it is rarely done by the profession. Now comes the most difficult part, the actual retouching. If the negative has been properly lighted, correctly exposed, and carefully developed, the work will be quite easy, unless the subject is much marked with freckles, in which case it requires a certain amount of skill and patience to remove them. It will be best seen from an examination of the rough print what is required. Many spots and blemishes will be seen which really are in the subject's face, but considerably exaggerated in the photograph; to get rid of these and soften strong shadows, without in any way losing the likeness, is the work of the retoucher. Different faces require different treatment; old faces may be worked over without in any way altering their character, but still may be improved. Some faces are patchy, which would be unwise to leave so; the patchiness must be removed, which will not affect the likeness, but will give a more pleasing expression. Children's faces require very little work, unless much marked with freckles. In the faces of young ladies and gentlemen there should be no very strong lines or wrinkles. About the most difficult faces to do, to give satisfaction, are those of middle-aged ladies. The majority of lady customers say nothing about wanting to be flattered, but it seems to be an understood thing that the photographer is to do his best in that way. Of course, there are exceptions. One lady gave me special instructions to touch out all lines and wrinkles, and to make her look as youthful as possible. Only once, I think, have I been asked to do it, and only once have I been requested by a gentleman not to touch up his photograph at all—he wished to come out just as he was, as Oliver Cromwell said, warts and all. But I did touch him up, and he was perfectly satisfied.

When commencing a head, the better plan is to give it a general clean up, get rid of all the defects first, and soften shadows and lines that are too strongly marked. Do not fill in all shadows alike, or a flatness will be the result.

Rules cannot be laid down as to the movement of the pencil. Almost all workers have a different style of their own, some working with certain comma-like strokes: others, again, in small circles, in straight lines, in cross-hatchings, and a variety of other ways. I prefer partly cross-hatching and a sort of zigzag rubbing motion as being as good as any other. Delicacy and freedom of touch can only be acquired through practice and experience; strokes of the pencil should run in the direction of the muscles as much as possible. I remember many years ago, when retouching first came into general use, some of the heads done in the "Berlin" style, as it was then called, looked more like a person who had had a very bad attack of small-pox, so coarse was the grain on the face.

There are many who condemn retouching altogether, and no wonder when we see such attempts as we often do in every-day work. Some faces are covered with white spots, others are like sandpaper; children, old men and women are all made alike. Others, again, are in favour of it, and, I think, rightly so, many photographers using it only as a necessary continuation of good and careful work. I think a good retoucher is as useful a member of the photographic profession as any other, and I think, if amateurs would devote a little time to retouching, their negatives would be sometimes much improved by it. I now conclude with the hope that my paper has not proved too wearisome to the members here to-night.—*Newcastle-on-Tyne and Northern Counties Photographic Association.*

* * *

NATURALISTIC PHOTOGRAPHY.

BY P. H. EMERSON, B.A., M.B. (CANTAB.).

(*Continued from page 263.*)

GENTLEMEN, let us conspire *not* to be called by any false or vain names such as "artists," but to produce beautiful decorative work, each of us in his own way. Let us in friendly and unselfish spirit band together for the furtherance of this end, and let the too eager or ambitious (I will not say vain) neophyte remember that the proof of his delicacy of vision is in a measure what he shows us *of his own*, and that as there are few Laura Bridgemans with perfect touch so there are few seers of the most delicate beauties, because few organisms have delicate vision. Let the neophyte and others remember that the seers of the beautiful are as rare as the limners of beautiful scenes; that physiology proves that most are for ever fatally limited to remain *without*, and no disgrace either, if such have but the honesty and pluck to own it the disgrace is pretentiousness and imposture—in *pretending* to see.

Amongst these blind have been the vast body of persons who have ridiculed Mr. Whistler, indeed nearly the whole press has ridiculed him; and yet, gentlemen, to-day his pictures hang in the most honourable position in Paris, the city at present the Queen of the Arts: and so it will always be, for I for one believe that truth is great and will in the end prevail over obtuseness and dishonesty, for I am optimist enough to think the majority of men are fair-minded, honest, and manly, and that though they may for a time let the rogue and the cad live their little days, they will in the end arise and put their houses in order and turn the unclean from their temples.

As for these propositions, gentlemen, I do not intend to fight over them, for they are *propositions*, and therefore no fighting matter, but provisional until psychology shall either prove or disprove them.

I offer them to you frankly and trust you will deem them worthy your consideration, after which I leave you to accept or reject them, as your honest judgment dictates. At any rate, they may prove interesting to some of you, at least I hope so, for they are an attempt on my part to solve what has long been a vexed question, a problem to which no satisfactory or *rational* solution has hitherto been offered.

Mr. T. Bolas said the meeting was under considerable difficulty in having read to it—necessarily somewhat hastily—a paper involving a great deal of thought, and it was no reproach to Dr. Emerson to say that, in some respects, his phraseology was not easy of apprehension. Any man who thought a great deal, and thought earnestly, about a subject not commonly discussed, almost necessarily expressed himself in phraseology difficult to others. Although it was impossible adequately to discuss the paper at the present time, it enabled those who had studied Dr. Emerson's previous remarks to understand the full bearing of his recantation. He appeared to have changed his fundamental views, but not what might be considered his practical views as to methods of working. He seemed to have changed his opinion as to the nature of the result obtained by working in the way he indicated; and now, instead of looking at a photograph as a work of art, he told them that it was a decorative illusion. Now, in one of Mr. Ruskin's early works—he thought it was in "The Two Paths"—Mr. Ruskin spoke of Turner's pictures as being absolutely true to Nature, and as having an outline as definite and accurate as would be given by one of Mr. Ross's microscopical objectives. He (Mr. Bolas) thought that was an extreme thing to say, and that Mr. Dallmeyer as an optician would recognise that Ruskin must certainly have gone very much too far in that matter; indeed, to the best of his recollection Ruskin afterwards recognised that this was the case, and that Turner's pictures were rather illusions of Nature than transcripts of Nature. He thought Dr. Emerson had gone through a somewhat similar change in his mode of thought. The writer of the paper had dealt with the difficult question as to whether the beautiful was objective or subjective.

Most constructors of paintings and frequenters of art schools would say, quite confidentially, that beauty was objective and not subjective ; but among careful thinkers the subjective view is more common, and he thought the same contentions that Dr. Venn put forward in his view of subjective probability would hold in this case. The tendency of thought was gradually verging very much towards subjectivism, and the idea of subjectivism ran all through Dr. Emerson's paper, and from that point of view it was very interesting as corresponding with the tendency of philosophical thought at the present time. Dr. Emerson's remark about the ideal changing during the progress of a work of art was of considerable interest as bearing on the subjective idea of the beautiful. It would be hardly possible to fully understand the paper until it was printed and could be examined at leisure ; in the meantime, there were a great many ideas in it which he thought were quite new in the field of art criticism.

Mr. A. Pringle was quite willing to believe that the paper was an extremely able communication, and one pregnant with matter for discussion. His idea was and remained that the particular subject—namely, the subject of photography in its relation to art—so far from having been, as Mr. Bolas suggested, very little considered, had been a very great deal thought of during the last year or two, and perhaps more discussed than was profitable. However, he did not think that, at the present time at all events, any profitable discussion was likely to be forthcoming, judging from the deep subject of the paper, from the nature of the paper itself, and from its somewhat high-flown and enigmatical language. He thought he detected in the paper a certain amount of truisms as old as the hills and a certain amount of extremely debateable matter, either of which, if separated, could be separately discussed, but which, being mixed up as they were with other questions, rendered discussion extremely difficult that night.

Mr. W. E. Debenham said that in the early part of the paper—in which, presumably, Dr. Emerson recanted his recantation—the author had referred to photographs out of focus "to the extent that structure must not be destroyed." He (Mr. Debenham) thought that in so far as a photograph was out of focus structure was destroyed, it would be necessary to provide a definition as to how far sharpness was to be wanting before structure was destroyed. A gentleman had once shown him one of Dr. Emerson's photographs and, covering a portion of it, had asked, "Now, what is *that*?" referring to a particular part. Judging from the background and the rest of the picture, the portion in question was a tree, but it would have passed just as well for an old broom—the structure was so completely gone. Dr. Emerson objected to photographic or mathematical perspective, in that circles were represented as ellipses and a man's boots were not twice as big as his head. Of course, that proposition by itself was indisputable, but the idea it carried was that if the boots, being in a nearer plane than his head, came out larger than the head itself by measurement, then the photograph was not true. If the words did not mean that, Dr. Emerson should say so ; but he (Mr. Debenham) presumed that was what they meant. Then that really brought them back to the times when such as the Chinese perspective was accepted ; things at different distances being represented as all about the same size, because they were known to be about the same size, and he thought Dr. Emerson was confusing what he called "sensuous impressions" of things with our actual knowledge of their proportions. We had a knowledge that things were of certain proportions ; but we were also accustomed to see one thing in front of another subtending a larger angle than the thing behind it, and one knew, therefore, that it was represented necessarily in the picture as larger than the thing behind, although the two were the same size. There was no other perspective possible but mathematical perspective ; try to avoid it in any way you would, you must introduce a falsity. Dr. Emerson said that in a sharp photograph sentiment was disregarded. There were two meanings to the word "sharp": the painter's general meaning of "sharp" was "harsh," and he had known a photograph which was not sharp in a photographic sense, objected to by a painter as "too sharp" simply for that reason—that it was harsh and crude. The paper said, too—and perhaps this was a point upon which they were all agreed—that a great deal of "pretentious rubbish" had been written about art in connection with photography ; but he quite believed that many of the writers against whom Dr. Emerson had tilted would be inclined to retort, if they chose to use Emersonian language, and call the present paper "pretentious rubbish," and he would not venture to say which would be the more correct of the two. Then it was said that a truthful representation of Nature was absolutely impossible on a plane surface, and the instance was given of seeing round the reeds. Of course, that condemned pictures of all kinds, paintings and photographs together. But were they to be condemned because with two eyes the reeds could be seen without obliterating the background? If so, they were brought to this : that photography was the only means of representing Nature truly, because a stereoscopic photograph removed the objection ; but he had never heard it claimed that stereoscopic photography was particularly true to Nature. Finally, Dr. Emerson said these were not fighting matters. Why not? Because they were propositions? Why should they not be "fighting matters"? It was absolutely unreasonable.

The Rev. F. C. Lambert said he was unable to tackle at once a paper covering so wide a field, and calling for previous and very careful study ; it contained so much that was old and true, and so much that was new and debateable, that it was necessary to separate the grain from the chaff before commencing to weigh the two relatively. The subject-matter at first glance seemed to resolve itself mainly into this, that because the photographer placed between his brain and what he saw something which Dr. Emerson was pleased to term a "machine," therefore the product had no stamp of individuality upon it. Did not this argument hold good just as much with respect to the painter, who used a brush, if it was to be chiefly a question of the intervention of tools?

(*To be continued.*)

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, MAY 5, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. V.—The Promise of May.

> "When all is ycladde
> With pleasaunce; the ground with grasse, the woods
> With greene leaves, the bushes with bloosming buddes."

WHAT a breath of Spring there is in the words! What a delightful suggestion of photographic weather of the bright sort Chaucer gives us in these two lines and a half! It comes as a sort of absurd surprise that the weather was as fine four hundred years ago as it is now. With the poets it was always this kind of May. We get our weather a little more mixed now; possibly we interfere with it too much, distrust it, watch it, and prophecy it. Perhaps it preferred, in the time of the poets, the simple sentiment of opening and closing flowers, and faith in the signs and aspects of Nature, to the more pretentious scientific measurements of the barometer and thermometer, the wind gauge and rain measurer. This year we have our May weather early, let us hope not to the prejudice of that we are just about to enjoy—or suffer.

It is once more May. We are now in the thick of the chief hobby of the century. The unusually brilliant weather of March and April must have awakened those photographers who hibernate during the winter, and usually sleep into the late spring. The earth swarms with cameras. "From Greenland's icy mountains to India's coral strand" the camera, with or without legs, is the common object of the universe, and on every well-advertised coign of vantage it is difficult to obtain a footing for the crowd.

The camera is one of the greatest friends and blessings a man (or, for that matter, a woman) can carry with him, even—and I call particular attention to this, because it is so usual—if he have very little knowledge of how to use it. He may, and then his bliss should be supreme, get pictures, but all that is wanted for the enjoyment of a holiday is that he should have faith in himself until he gets home, and if he could only refrain from trying to develop the interesting and valuable results there would be no material for regrets. The companionship of a camera teaches men to observe, to criticise, and to think, and the man who could travel from Dan to Beersheba no longer exists: the camera has wiped indifference out of him. The tourist no longer passes through a beautiful place at night and ticks it off in his guide-book, he must take the place home with him; the aspects of Nature become more familiar to him and he is led to other kindred pursuits. The man who, perhaps, exposes the greatest number of plates and gets the least benefit from the operation is the one who reads up "objects of interest," and the "best spots," so freely supplied to him by some of the journals, and obediently sets up his camera as directed on the well-worn locations. Kenilworth and Conway Castles have been laughed out of the exhibitions, but are still severely photographed and sent to minor competitions; Lynmouth, Warwick, Ludlow, Canterbury, and a host of other places are still visited at the word of command by hundreds of photographers who have eyes in their heads which they never use, who are capable of original research after beauty, but prefer it ready made, even if second-hand. In the autumn of last year I was told by the custodian of one of these show places that it had been photographed that year, from a particular spot, 227 times, and there was yet time enough before the end of the season to make it up to 250. Is this a record? No wonder that those generous editors who offer medals, almost "at sight," are beginning to complain that some of the photographs sent for competition are not always quite original.

I have not ridiculed this constant photographing of the same views "for the fun of the thing" (they don't do any harm, or flood the world with duplicates, so few are born alive), but because I have a novel, original, useful, and ingenious method to recommend to those who have followed the photographic itineraries. This is the great but simple idea. Let them, during the winter, read up all they can get of descriptions of pet places, make a list of them, get sick of them, and register an awful vow to avoid them. This done, the mind will be left free to look after the picturesque for its own sake. If any special views of famous places are required, they are to be bought a great deal cheaper than they can be made, or is pleasant to think of.

It were a curious consideration how many plates and films are exposed every hour of the working day at this time of year; how many are developed, how many are *thought* good enough to print, how many are *really* good enough to print, and what percentage—if any arithmetic could give that fraction—are sent to exhibitions. I once knew an amateur gardener whose curious experience it was that, no matter what seed he sowed, the result was nearly always chickweed; and I am almost afraid that with some photographers, no matter what the view, beautiful or otherwise, the result is the same—photographic chickweed. But what does it matter? My gardener had the pleasure of watering and shading the seed. The hunting, and not the hare, is the enjoyment. The greatest enthusiast will admit that the object of photographing is not always picture-making, and some find pictorial results so hopeless that they take care to deprecate any possible intention of producing anything of the kind by saying, without a blush, that they know nothing about art. Then why should they bother their artless heads about the picturesque and beautiful?

Others, however, are of a more gracious nature. Our art is very materialistic, but we must make the best of it. We need not always be photographing prosaic stocks and stones. Let us make up our minds for a time to photograph *effects* instead of *things*, or, anyway, let us try to produce effects as well as things. It would be good discipline. We should try to remember that besides the mountains, rivers, and trees, castles, cathedrals, and churches, there are light, and air, and shade; that we have also morning and night as well as noon; that, except for scientific or trade purposes, we need not strive to show everything brilliantly defined. Several photographers have shown that it is possible to generalise the phenomena of Nature, although some of them, it is true, have gone too far, and almost eliminated Nature altogether. But this, perhaps, was only the disease of genius, and is curing itself. However, it has been very definitely shown that the photographer can not only select scenes and improve subjects, but he may also select effects, and give a very good notion that he can hold an artistic domination over his materials, and render Nature, or as much as he wants of it, in his own way.

I am quite aware that this has been denied, and, further, that no matter how often practical men prove to the contrary, there are those who seem to take a delight in repeating the stale old hallucination—or worse—that the "machine" turns out all its products alike. But supposing up to the point of exposure all were alike (although the merest fractional variation in exposure would make a difference), a good deal happens afterwards, and conditions are so variable that the curiosity would be to see two results, even by the same hand, alike: but let each of any number of photographers select his day and hour and atmosphere, to say nothing of a thousand and one minor conditions, and he would be a poor judge who could not see the individual in each picture.

Some say that all picturesqueness is going out of Nature, and I am afraid there is some truth in the remark. Science is, perhaps, good for the world, but it is a deadly enemy to the artist. It is not the fault of science if the nature which used to be the poet's dream does not become a common work-a-day world, all factory chimneys, girder bridges, iron piers, and telephone poles. But there is some consolation in the thought that the gifts of heaven never grow threadbare by lapse of time; they only change. We get the old coin re-minted; the new money may not always be so beautiful as the old, yet it may sometimes be better, as we find with our latest coinage; and it does not lose its value. The old post road was beautiful but limited: the modern railway, though often ugly, opens up vaster regions to the seekers of the picturesque. Not that any amount of age and hoariness will ever make a telegraph pole beautiful, or the cobweb of telephone wires that are obscuring our towns ever a delight to the eye; yet one of our most advanced experimenters in odd effects has tried. Who that saw it does not remember Mr. Calland's attempt, which was almost a success, to make a picture of three telegraph poles—that curious little picture shown in the exhibition of the "Pictures of the Year" at the Camera Club?

CAMERA CONFERENCE NOTES.

"Astigmatism for Pictorial Effect in Photography."

MR. BRIANT commenced his paper with the remark that any means of picture production is fair, and that every method is good or bad, according as it is justified or otherwise by the result. "Softness of focus" (which, by the ungodly, is known as fuzziness) obtained with a lens or a pinhole may be defined as circular softness, a point being represented by a disc; but another kind of softness—*lineal softness*, where a dot is drawn into a line—can be produced by using an ordinary astigmatic spectacle lens. Such a lens, being ground spherically on one side and cylindrically on the other, has two focal planes, one for lines in one direction, and the other for lines in the contrary direction; and the optician, in selling such a lens, would give the focus for either side separately, thus:—

Spherical focus	14″
Cylindrical focus	48″

Mr. Briant then detailed the various diaphragms which he had employed, and said that, the longer the cylindrical focus, the larger the stop that may be used. The results obtained with such a lens resemble greatly those obtained with a slit-like pinhole. Having thus explained the tools and the manner of using them, Mr. Briant next dealt with the new effects obtainable with them, and several specimen pictures were handed round.

In the discussion which followed the reading of this paper, Mr. Humphery opened the ball by saying that until people began to suffer from softness of the brain, they would not want softness all over their pictures. He believed in subordinating the rest of a picture to its principal part, but not in making the whole thing a deadly blur. Persons who could not see nature in the normal way should go to some eminent oculist for treatment. Mr. Welford thought that one might manage to see a blurred nature by getting very drunk. Mr. Davison said he could not speak with authority on the point raised by Mr. Welford. The author of the paper had taken up a line which seemed to be a valuable one in pictorial photography. The question between sharp and soft pictures was one of individual taste and feeling. Mr. Lambert thought that the results which they had seen were suggestive, and that this class of work would well repay experiment. Captain Abney complimented Mr. Briant in taking up his subject in the true spirit of an experimenter. He thought that we should remember that the photographer is not quite in the same category as other picture-makers. The latter have to make the best of things, and we have become so accustomed to lack of detail in a painting, that we have come to like it. For his part, he felt sick and giddy in his head after looking at the pictures which had been passed round. He was not joking; they had this uncomfortable effect upon him, and he would be content never to see them again.

"The Organisation of Meteorological Photography" was the subject of Mr. A. W. Clayden's paper, who said, referring to his work in connection with the British Association Committee of Meteorological Photography, that he found it somewhat difficult to make photographers understand what sort of co-operation was required of them when they were asked to help in the matter. The committee referred to was appointed to report upon applications of photography in the elucidation of meteorological phenomena and to collect photographs. The applications of photography were restricted to those phenomena which could be directly recorded by the camera. The work resolves itself into two parts—special investigations and general observations. Under the first head comes cloud photography—not from an artistic point of view, but having regard to the clearness with which cloud forms can be recorded. Many different methods have been advocated, and it is believed that a conference of photographers upon the subject will lead to the survival of the fittest. These various methods may be grouped as follows:—

(*a*) The use of slow plates.

(*b*) The employment of a coloured screen, and the best plate to employ with it.

(*c*) Reflection from a black mirror.

(*d*) The desirability of using a multiple-coated plate.

If each investigator would try two or more of these methods, and would report results, he would do valuable work. The method having been decided upon, the next phase of the work would be to form a collection of groups of cloud photographs. For instance, the same cloud might be shown taken at intervals of a few seconds, so as to exhibit changes of form. Such photographs should be accompanied by notes as to time, direction, peculiar atmospheric conditions prevailing at the time, &c. The foregoing remarks apply to thin clouds at high elevations (cirrus). Photographs of thunder-clouds—particularly those on the margin of a storm—would also be valuable. We all know that weather changes can be partially foretold by observing cloud changes; but the relation between the two are, as yet, imperfectly understood.

With regard to general observations, these embrace a far greater number of possible helpers, because anyone who can take a negative will be able to give valuable help. Observers are wanted in every possible place, and each one should have his apparatus always in readiness; for meteorological phenomena were of the most fleeting character, and must be promptly dealt with. A hand camera of fixed focus would be quite sufficient for most purposes. The observer must not be stingy about wasting a plate or two, for something that he may not think worthy of photographing may really prove to be very valuable. It is useless to look for pictorial excellence, for this is not wanted; a negative with a scratch across it, or one which is badly stained, will do well enough for meteorological purposes, provided its message can be read.

With regard to lightning photographs, when the forecasts tell of thunder locally, then is the time for the observer to be ready with camera ready focussed and everything else in readiness. He should note at the time of taking a photograph the time and the number of seconds which elapse between the flash and the thunder. In the case of lightning, the camera should be fixed on a stand free from oscillation or vibration.

Waterspouts, tornadoes, dust storms, floods, may also be regarded as phenomena where photographic records might be valuable. Abnormal hail-storms and hail-stones, as well as snow-storms, will also come within the grasp of the meteorological photographer.

In the discussion which followed this interesting address, Mr. Webber said that he had in photographing clouds found the best results in the use of lantern plates coated with a slow emulsion, and used in conjunction with a yellow screen. Mr. Sturmey thought that as good results could be had without the screen and by making the exposure correspondingly shorter. Mr. Briant had taken clouds with a pinhole, giving three seconds' exposure.

Mr. Warnerke said that the function of the yellow screen as employed by Mr. Webber was simply to lengthen the exposure. He hoped that Mr. Webber and some of his friends would band themselves together in this good work. Some time ago he himself was engaged in taking some cloud pictures in St. Petersburg, and finding houses and trees in his way, he occasionally, and especially on windy days, mounted a church tower, where there was more room for choice in clouds passing by. He had done similar work from a church tower at Paris, and in both situations he had found the tower to sway so much in the wind as to make a slow exposure quite impossible.

Mr. Van der Weyde's paper on "The Pictorial Modification of Photographic Perspective" we have already criticised. In an amplified form he has since brought the subject before the Society of Arts, and we reproduce on another page the matter from the *Journal* of the Society.

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THE ROYAL ACADEMY.

BY SOL. JUNIOR.

THE present Exhibition at the Royal Academy has no particular points in common with the photographer's art; but, in searching for pictures which might be of interest to the men of the camera, we made notes of the following. A word to the wise: when you go to the Academy, do not go through the catalogue from No. 1 to No. 1,829, but go at once into the large gallery, No. 3, while you are still fresh and unjaded. Though there are many good things in other parts of the building, the best, or the greater number of good works, are in this gallery.

No. 126, Madame Sarah Bernhardt, by W. E. Spindler, is a brilliant and masterly piece of portraiture. No. 128, "Evening," by C. G. Morris, is a curious landscape; the distant trees are quite bare, and every bough is most carefully pourtrayed—painfully so—and the foreground, on the other hand, is somewhat more open in treatment, not to say fuzzy, almost giving one the idea that the artist had made use of a very sharp photograph for his trees, and had relied upon his unaided skill for the front of the picture. Near this are Nos. 130 and 135, two magnificent portraits by Herkomer; the first, a sitting portrait of the Duke of Devonshire, is singularly broad and fine. Between these pictures hangs "The Funeral of a Viking," by Frank Dicksee, R.A., a masterly work in every way. No. 139, a portrait by Ouless, R.A., a strong piece of portrait work, as is also his No. 154. Both these pictures represent gentlemen in hunting costume, enveloped in large fur-collared and cuffed overcoats, displaying rather a lack of resource in accessories. Nos. 143 and 173, two portraits by the late J. Pettie, R.A., are of interest, not only for their brilliant treatment, but as well for the fact that they are the last works of this much-lamented artist. No. 144, Louis XVII., "A Prisoner in the Temple," by Florence Hannam, a pathetic story deftly treated. No. 153, "Pearly Summer," by John Brett, A.R.A., is, indeed, a "pearl"—a most gorgeous specimen of this painter's work; a calm sea, with a wonderful study of clouds over the horizon, and a few ships waiting for a breeze to carry them on; the painting of the water, which is lazily moving, is a thing to be admired. "Rizpah," No. 159, by the President, is as accomplished as his work usually is, and exhibits more dramatic power than we generally get from him; but what the idea of the "Rizpah's" oyster-like eye is we know not. "Evening," by H. W. B. Davis, R.A., No. 164, is a nice, comfortably arranged subject, just such an one as would have suited a snap-shooter if he by chance had come across it in nature. No. 185, portrait of a lady, by Luke Fildes—one of the most charming, quaint, old-fashioned portraits in the show, like a Romney or an Opie; but the hypercritical will wonder why this lady, whose face is otherwise so faultlessly beautiful, should have her chin on one side instead of being directly under her mouth and nose. Next to this is a picture by that wonderful old man—one might almost call him an old master now—S. Cooper, "In the Fordwich Meadows, East Kent"; the atmosphere and the photographic, and yet broad, painting of the cattle, and the fine effect of sunlight, in this work of this painter, now in his eighty-sixth year, is simply marvellous. No. 187, "Dr. Joachim," fiddle in hand, by Alma Tadema, will please the disciples of the fuzzy school of portraiture: a wonderful piece of skill. Near this is No. 190, the Prince of Wales, by Stuart Wortley—a name well known in photographic circles; a very good likeness of the Prince, who is depicted in black stockings and pumps, with the ribbon and badge, and wearing on his leg the garter, and, to finish all, an Inverness cape—somehow rather an incongruous arrangement. No. 198, Lord Rookwood, by Orchardson, R.A., is about the most accomplished work in portrait-painting in the Exhibition. You can almost see the breath moving the white moustache; and note the way the right hand is put in, the perfection of realistic idealism, or idealised realism; it is both a picture and a portrait. No. 199, "Chloe," by E. J. Poynter, R.A., would have been bad as a photograph by a beginner; nothing but unnecessarily elaborated details, which could by no possibility be seen. The distant flowers are as highly worked up as the foreground, giving an unpleasant effect of flatness all over. It is a pleasure to turn to No. 201, three portraits of children, by H. A. Howitz, and to note the merry smile on the little red-headed laddie, who is under the protecting arm of his handsome, dark-haired, pensive-looking sister. Oh! I forgot! I have inadvertently passed one of the most charming subject-pictures, No. 158, "A Honeymoon," by Marcus Stone, R.A. Note the arrangement of it; and still it is such a work as a skilful photographer, who did not mind trouble, could almost obtain. Look at the bunch of grapes on the plate, and at the hat, and then at the woman's face, and, again, at the delicious bit of landscape behind, and observe, please, that the background is not made woolly or out of focus; it is merely a little flat, and, though the detail is not made out, you can feel that it is there. No. 204, "Pensive," by Millais, like, I am sorry to say, most of subject his works this year, is very disappointing; it is coarse and ill-drawn. When you come to No. 205, "An Orchard in Picardy," a picture with sun shadows in it, by H. W. B. Davis, R.A., stand right in front of it, and then make yourself into a human camera; close one eye, and you will see, not a painted picture, but a real orchard, with the sunlight flicking hither and thither. No. 202, "Early Morning," by F. J. Mackenzie. Is this a photographic exhibition? No—of course not! And yet we have seen many photographs of boats lying on mud-banks quite as good, if not—well quite as good as this. We must call attention to No. 209, a lady and child and some swans, and some fireworks going off in the sky. No. 211, "Good Liquor, Duty Free," by J. C. Hook, R.A., will please those that are fond of the sea; and, to hark back, No. 191, "Summer at Sea," by Henry Moore; a blue sea, made of blue rocks, not a patch upon many a sea photograph we have seen—Dresser's, to wit. No. 219, "Comparisons," by Alma Tadema, R.A., is as marvellously beautiful in execution and treatment as No. 199 (in a measure, a similar kind of style of work) is bad. Tadema, of course, cannot do anything but good work; but he can sometimes paint ugly women, which is rather the case in this instance. But consider the extraordinary wealth of detail, and yet the richness of it, as displayed in this lovely picture! No. 220, by T. C. Gotch, tall lady growing by the side of bulrush, or tall bulrush growing by side of lady; lady wears a very large black hat, bulrush does not. No. 228, "Thereto the silent voice replied, 'Look up thro' night, the world is wide.'" This winds up the gallery, and leaves the visitor wondering why the lady with a green face and a strangely-coloured garment, covering a body devoid of drawing, should be listening to a ghost, apparently, clad in a blue diaphanous something or other, and purple hair, and how the ghost, or bogey, managed to reply with a silent voice.

(*To be continued.*)

THE PICTORIAL MODIFICATION OF PHOTOGRAPHIC PERSPECTIVE.

BY H. VAN DER WEYDE.

EVER since I invented my system of reflected electric light, which I had the privilege of exhibiting in this room many years ago, and put aside for a time my palette, to join the ranks of the photographic profession, I have been made to realise as acutely as anyone the limitations, impossibilities, and shortcomings of photography. Not only have I felt that these limited my ambition while I was trying unconventional posing, but it has often been painfully irksome to have to explain the restriction of my powers to a class of sitters whom I may fairly describe as the non-photographic type. These sitters—and most of them, I must confess, are of the fair sex—are prone to lament that their hands (which they always try to hide)—to say nothing of their heads and waists—come out much too large. Others, again, fancy themselves much taller and slimmer than they optically, or perhaps I may say architecturally, really are, and I have always been compelled to admit that they are right—that is to say, visually right, artistically right—and that photography in their case could not do justice to one's visual impression. The invention which it is my privilege to submit to your notice this evening is, therefore, the outcome of necessity, and meets a great want which all leading men in the profession, and many amateurs, have long and keenly felt.

On few subjects, I venture to submit, has there been of late so much discussion, so much debate, and so great a confusion of ideas as on that of the question of the truth of photography, and the value of its services to art, which latter have been most generously and freely admitted by the greatest masters of the brush amongst us. But now that we are attempting to correct figure, portrait, and landscape photography, I think the time has arrived when we may usefully attempt to analyse it, and appraise it at its actual value; the more especially as I am convinced, from careful observation of the work of some of the best draughtsmen and painters of to-day, that the close study of photography is ruining their judgment and vitiating their appreciation of the beautiful. Eloquent proofs of the baneful effects of the new creed, that photography cannot lie, appeal to us on every hand. Take up, for instance, the current number of the *Century Magazine*: here we find a draughtsman of the first rank permitting himself to draw horses in action as no other man has ever drawn them, and, as, I venture to add, no human eye has ever seen them. Obviously he has studied instantaneous photography, and honestly believes that he is taking a fearless and conscientious new departure in pictorial art in the cause of truth, oblivious of the fact that the camera registers a section of an action immeasurably more minute than the eye of man can chronicle and convey to the brain, and, therefore, he depicts what he has never seen, depicts what is to all practical purposes an untruth, a state of affairs of which no human cognisance has or can be naturally taken. Similarly, we see portraits nowadays painted under a like influence. Time was, about half a century ago, when artists obeying the behests of fashion, painted heads, hands, and feet absurdly small. Photography, no doubt, is responsible for the reigning reaction. The tendency of town dwellers—the professional class, artisans, tradesman, &c.—who get little exercise for their whole bodies, and use their heads and hands only in the struggle to earn a living, is to beget a large-headed, small-bodied race; while those who from early youth get plenty of exercise—the privileged classes, the aristocracy, the agricultural labourers, and even the miners—are noted for their more symmetrical or classic proportions, and their well-poised, small heads.

We see at the Royal Academy, the Salon, and elsewhere, portraits disfigured by enormous heads, hands, and feet, looking for all the world as though their outlines had been traced from an enlarged photograph originally taken with a short focus lens. We see figure-pieces intended to carry us back to classic times, which would be delightful and perfect but for something which takes away their ideality, which makes them too familiar, almost vulgar. What is this something? It is, that we instinctively recognise in the figures, the type of the modern town-bred model, or of the sedentary professional race, perhaps members of the artist's own family. It is not, however, given to every painter of classic subjects to so appreciate and adore that perfect harmony of a classic form as to be able to be true to, and resist the deterioration of, his ideal through the constant contemplation of his models, and the baneful influence of optically distorted photography.

Science protests that photography cannot lie. Well, optically it cannot. I have been trying to put my argument into a nutshell. I may not have succeeded, but here it is for what it is worth—optical truth is not visual truth. This may seem very much like a paradox, but the dictionaries are so singularly unaidful to me in my dilemma that, for the sake of argument, we must let it stand for the present. The force of the statement is, however, one which the future must speedily recognise.

Optical truth, then, as far as photography is concerned, is the result of a mere mechanical impression on a plate, which is sometimes more wonderful and beautiful than anything the human hand could fashion; but which, on the other hand, is sometimes so brutal in its fidelity, and microscopically vulgar, as to give one a very disagreeable surprise.

Visual truth is a very subtle quality. Its appreciation depends on the observer's artistic sense and powers of comparison. I would go as far as to claim it as an hereditary quality which different people possess in different degrees.

There is a great distinction between it and optical truth, or the truth of the camera. The camera focusses every spot at the same instant, without favour or prejudice, uninfluenced by natural selection. The impression on the brain, on the contrary, is affected by all these things. The eye focusses only one portion of an object at a time, and whilst the rest of such an object is within the diffused vision, the impression on the brain depends on the temperament and the more or less artistic environment of the observer; the brain instinctively and unconsciously recognises the quality of distance. In portraiture, we have to please the family, the relatives, and the friends of the subjects—those, in short, who are most familiar with their appearance; and, in their case, the visual truth is the outcome of loving and friendly contemplation. The first essential for a successful portrait painter is that he should be sympathetic, possess a great deal of the milk of human kindness, and love his fellow-man. These are the gifts that will enable him to approach his sitter in the family spirit. When he paints a portrait, say of a sweet old mother, he unconsciously tones down and modifies the optical truth, and, guided by the visual truth, he accentuates the air of distinction and spiritual dignity which his own refinement enables him to see and appreciate. But the photographer, though he be a born artist, and ever so appreciative of these qualities in his sitter, is cribbed, cabined, and confined within certain limitations and poses. It is almost useless for him to study the work of the great portrait painters; for the moment he copies an unconventional pose, say with hand or foot extended towards the camera, he produces a libel, and I defy anyone to judge of the actual size in proportion to the body of the extremities of a sitter when thus brought forward in a photograph.

(*To be continued.*)

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

April 20th.—Mr. E. J. Wall in the Chair.

The adjourned discussion on Mr. Williams's paper was opened by the reading of a paper by Mr. A. Cowan.

Mr. J. Cadett said as to orthochromatic plates, in the few instances that he had tried, he had found that speed as indicated by the candle to be correct for daylight, though, no doubt, when a screen was used there would be a difference. There were two reasons why the Warnerke system had not been successful. One was that the screens could not be depended upon as being alike; and the other was that the last faint row of figures had to be neglected or they would prove to be very misleading.

Mr. W. E. Debenham said that as to orthochromatic plates, the use of a candle for testing was equal to using a yellow screen by daylight, and if plates professing to be orthochromatic showed equal proportionate rapidities with an ordinary plate, both when exposed to candle and daylight, the orthochromatism was a profession merely, and non-existent in reality. As regards the last few figures on the Warnerke sensitometer, he believed that he had been the first to propose that course, and to point out the occasions when it became necessary. It was when there was a row of faint figures all nearly alike. In this case the number should be selected where there was an appearance of growth in density. This was, no doubt, only a rough and approximate way of getting at a certain point which Messrs. Hurter & Driffield had indicated with much more exactness by their straight line method.

Mr. Spurge quite agreed with the Hurter & Driffield method of plotting out the curve, but objected to the use of the candle as the standard of light, and to exposures which were not simultaneous, but consecutive, inasmuch as the light was liable to vary considerably during the testing.

Mr. Ashley Cowan hoped that Mr. Williams would find more in the Hurter & Driffield system than he was at present prepared to admit. Having made perhaps as many readings with the instrument as anyone, he would say that an error of more than 5 per cent. was the fault, not of the instrument, but of the operator. Mr. Wilson had said that the Hurter & Driffield system was right within certain limits, but that development and temperature might affect the result. It was for that reason that they had recommended for testing purposes a fixed developer used for a given time and at a given temperature.

Mr. G. F. Williams, in replying, said that Messrs. Hurter & Driffield had said that we had no control over gradation by development. That statement he disputed. Mr. Cadett had pinned himself to the theory that density, and density alone, was what we have to judge by. That statement he also disputed. Density was extremely difficult to read, and an observer might make it almost anything he liked. A set of fixed conditions of development for all plates he held to be essentially wrong. He simply desired to arrive at photographic truth. He had a decided belief that the Hurter & Driffield method was wrong. He particularly challenged the three propositions:—(1) That density is the sole thing to be judged for sensitiveness; (2) that the ratio of gradation is unalterable; and (3) that all developers behave alike as to gradation.

April 27th.—Mr. J. J. Briginshaw in the Chair.

Mr. Welford read a paper on "The Influence of the Hand Camera."

The **Hon. Secretary** thought that hand-camera men were rather too much given to firing away their plates, without taking the time necessary for obtaining the most picturesque results, and that, at the Society's outings, the stand-camera men produced a larger proportion of good photographs. The waste of plates was conducive to a good deal of bad language.

Mr. **W. E. Debenham** thought it was too much to claim for the hand-camera that it was the cause of the present rapidity of plates. He had obtained results ten years ago which indicated as much rapidity as he could now obtain.

Mr. **R. Beckett** thought there was no doubt that the work of the hand-camera did quicken the perceptions. Moreover pictures could be taken with the hand-camera that could not otherwise be obtained at all.

Mr. **J. S. Teape** was quite agreed as to the necessity of speed of action, and that until that was acquired good pictures of street scenes could not be obtained. In two or three seconds the figures were so changed that a desirable picture would be lost.

Mr. **Simpson**, an American visitor, testified to the utility of the hand-camera when travelling, although, when stationary in any place, he liked to be provided with a whole-plate camera as well.

Mr. **P. Everitt** said that much drunken architecture was due to the hand-camera. He thought the acceleration of the speed of plates was due as much to the requirement of the users of large plates as to the hand-camera.

Mr. **A. Cowan** said there was no reason why pictures taken with a hand-camera should show want of judicious artistic selection.

Mr. **Welford**, replying, said that a great deal too much had been made of the waste of plates and consequent bad language in connection with the hand-camera. It was quite a mistake to suppose that because the hand-camera was always ready it must be fired off immediately. On Primrose Day he waited for three-quarters of an hour, but the opportunity then came, and he got what he wanted.

Photographic Society of Great Britain.

Ordinary Meeting, May 9th, at 8 p.m.—A paper by Capt. W. de W. Abney, C.B., R.E., on "Some Uses of Moving Sensitive Surfaces." By Capt. A. M. Mantell, R.E., "On the Use of Tinfoil as a Support for Photo-Lithographic Transfers."

West London Photographic Society.

April 25th—Lantern Evening.

The President announced that this Society had been awarded the National Challenge Cup at the Crystal Palace Photographic Exhibition.

The evening was to have been devoted to showing the *Amateur Photographer* prize slides, but as these had miscarried in transit, the meeting devoted itself to general business of the Society, and discussed particularly the forthcoming annual dinner, which, it was notified, had been arranged for at the Frascati Restaurant on May 9th.

North Middlesex Photographic Society.

This Society had an interesting meeting on the 24th April, when Mr. J. **Matthews** read a paper on "Retouching," dealing with the subject, not so much from the technical side, as from the art point of view. He exhibited on the screen a number of slides from untouched negatives and went fully into their defects, showing how a high light should be strengthened here, a shadow toned down there, and an unpleasant expression modified in another place, and then showing another slide from the same negative, after retouching, from which the practical value of the hints given could be seen. He stated, incidentally, that he preferred Faber's pencils to work with, and found he could do all he required with Nos. 2 and 3. He also went fully into the subject of matt varnishing and colouring on the back.

The award for the best picture taken at Strand-on-the-Green was gained by Mr. H. Smith, and that for Waltham Abbey by Mr. S. E. Wall.

The next meeting will be on May 8th, when a demonstration of the carbon process will be given by the Autotype Company. Visitors are welcome.

Fillebrook Athenæum Photographic Society, Leytonstone.

At the meeting on March 20th, Mr. **H. T. Malby** in the chair, a discussion on "Rough Paper" was opened by Mr. **H. W. Bennett**, who contended that the indiscriminate use of very rough paper was not artistic, but simply a craze, partly due to the undue preference shown to coarse-textured prints by exhibition judges. He considered that the roughest should only be used for very large work, and that the subject should regulate the texture as much as the size; that the grain should not be obtrusive at the ordinary distance of viewing the picture in any case.

Mr. **J. W. Spurgeon** said that one of the chief characteristics of photography, its ability to render detail, was destroyed if the paper were too coarse for the subject. A style of photograph coming into prominence was the "foggy," but, in his opinion, a sharp picture, artistically good, was far superior.

Mr. **Caird**, speaking as a water-colour worker, said that rough paper was inadmissible for fine work, and most photographs were fine work on account of their small size. In water-colour drawing generally, the whole method of working was broader than in photography; even then very rough paper was only suitable for large and broad effects.

Mr. **Malby** considered that taste was shown in choosing a grain to agree with the scale of subjects represented. The texture had quite a different object in water-colour drawing from photography; the irregularities of surface allow a play of light and shade, and give transparency to masses of colour; and, by permitting simple washes rather than laboured effects, greater purity of tone results.

Next meeting, Monday, April 17th. Subject: "What to Photograph," to be opened by Mr. J. W. **Spurgeon**.

Hackney Photographic Society.

The usual meeting was held last Tuesday, Mr. **R. Beckett** in the chair.

A print of uneven colour was shown, and a question was asked as to the reason. A reply was given that the toning bath was out of condition.

Mr. **Roberts** asked if after developing in pyro a plate can be put into amidol for further detail.

Mr. **Dresser** said it was like jumping from the frying pan into the fire, and was not altogether advisable.

Mr. **Puttock** asked how to remove pyro stains from the hands.

Mr. **Beckett** said one way was to wash in 1 to 4 hydrochloric acid.

The **Hon. Sec.** asked Mr. Dresser how he removed amidol stains from the hands.

Mr. **Dresser** said they cannot be removed, must wear off; but washing in the dark was a good plan, as the light caused an action on amidol.

Mr. **Hudson** had been experimenting with developer for snap-shot work, and gave an excellent formula—an admixture of eikonogen and quinol with carbonate and caustic potash.

Mr. **Dresser** then gave "The After Work of the Hand Camera." Although he treated very largely upon this subject, he was drawn into other questions upon the hand camera, for which he is so well known, and gave among other details the following :—The chief point was a good lens and shutter, and advised a shutter working between the lenses, roller slide or films objected, to magazine form owing to the tendency to stick. A good eikonogen formula for snap-shots is :—Eikonogen 1 oz., sulphite soda 5 ozs., carbonate of potash 1 oz., caustic soda 1½ ozs., water 30 ozs., and for use take 1 oz. of solution, and 1 of water. For fuller exposures he would add bromide and redevelop by adding a little hydroquinone. He had been experimenting with amidol, but did not find it quite so good as amidol for short exposures. His amidol formula was :—1. Amidol 1 oz., metabisulphite potash 1 oz., water 10 ozs. ; 2. Carbonate of potash 1 oz. in 5 ozs. water ; 3. 10 per cent. solution bromide potash. For bromide work he would use 1 dr. of 1 and 2, and 1 oz. of water, adding bromide for full exposures. He used in enlarging the incandescent light, but care was necessary ; one light was placed behind the other, as better illumination was given.

Mr. A. **Barker** asked whether it was necessary to have a rising front and swing back to a hand camera.

Mr. **Dresser** was of opinion a rising front only was necessary. In answer to other questions Mr. Dresser preferred a 4¼ or 5 in. lens, and with small lens he would develop with amidol until he got detail, and then wash and finish with hydroquinone.

The **Hon. Sec.** announced that the next meeting was the annual one.

South London Photographic Society.

Ordinary Meeting, April 17th, at Hanover Hall, Hanover Park, Peckham.—Mr. H. G. **Banks** (Vice-President) in the Chair.

Mr. Moss reported that, in using Mr. Warnerke's developer for gelatino-chloride paper, he found that xylonite dishes were dissolved by the acid, and, at the same time, discoloured the pictures.

Mr. H. G. **Banks** exhibited a number of slides illustrating scenery on the Pennsylvania Railway.

Mr. **John A. Hodges** opened his lecture with views of North Somerset and North Devon. Dunster he considered to be one of the finest places for photographic work. After several views in the village and district, he described the villages of Porlock, Lynmouth, and Lynton, and introduced his hearers to the beauties of the East Lyn about Watersmeet and Rockford. Ilfracombe and Clovelly were also illustrated. The Vale of Llangollen and Dolgelly contained some very fine views, in which foliage predominated. He believed the secret of taking such views successfully was to give a long exposure, and showed a view that had had two minutes' exposure at *f*/22, the sun shining at the time. Barmouth he recommended to those with not much time to spare, and was a capital centre. Bettws-y-Coed, and neighbourhood, received some attention. In conclusion, Mr. Hodges suggested that societies should join with each other in their excursions.

Ashton-under-Lyne Photographic Society.

Rambles for May, 1893 :—

May 6th.—To Whaley Bridge. Leader : Mr. S. Sharp. Train leaves Ashton P.P. at 1.44 p.m. and Guide Bridge 1.50 p.m. Tickets, 1s. 6d. each, to be had from Mr. Sharp on the day.

From Monday, the 15th, to Thursday, the 18th, an exhibition in the rooms of the Society of over 100 photographs of "The Land of the Broads," kindly lent by the Great Eastern Railway Company.

May 20th.—To Belle View. Leader : Mr. T. Cheyne. Mr. Cheyne will be glad to meet the members in the Large Ball Room at 7 p.m. to report exposures, &c.

Liverpool Amateur Photographic Association.

The ordinary monthly meeting of this Association was held in the Club Rooms, Percy Buildings, Eberle Street, on Thursday, 27th inst. ; Mr. J. **Sirett Brown** in the chair.

Messrs. H. Jennings, Stanley Rimmer, James Wilson, and David Robinson were elected members of the Association.

Mr. J. T. **Norman-Thomas** reported on the excursion to Ince-Blundell Hall and Park, which was thrown open to the members by Charles Weld Blundell, Esq., on Saturday, 15th inst. About 100 ladies and gentlemen were present, and, owing to the delightful weather, a most enjoyable afternoon was spent.

Mr. E. M. **Tunstall** gave his lecture, entitled "Picturesque Holland," illustrated by over 100 slides made from negatives taken during August last year. The lecturer was well up in his subject, and gave a very graphic account of the various places visited.

It was announced that an excursion to Chester and River Dee to Eaton would take place on Saturday, 13th May next.

Birmingham Photographic Society.

Ordinary Meeting held in the large room, Colonnade Hotel, April 18th.—Mr. G. F. **Lyndon** in the Chair.

A **set** of slides, kindly lent by the Cheltenham Society, were shown and very much appreciated. Especially fine were a series of interiors of Gloucester Cathedral, beautifully chosen and splendidly executed. A number of hand-camera seaside studies were also very good. The meeting, on the invitation of the Chairman, passed a hearty vote of thanks to the Cheltenham Society for their kindness.

Ordinary Meeting, April 25th, adjourned from Colonnade Hotel to Y.M.C.A. Room, Needless Alley.—Mr. W. **Jones** in the Chair.

One new member was elected.

An extremely fine set of slides by Mr. **Hendren**, a member of the Society, were then shown on the screen. They comprised beautifully selected landscape and architectural bits, and were instances of most careful and successful composition. Mr. Hendren gave most interesting descriptions of the places and styles of architecture ; he also instanced the different results of various methods of development by sometimes showing two slides from the same negative ; this was of great interest to members. A plucky slide of a warm brown tone was in most instances preferred by the lecturer.

The **Chairman** expressed the thanks of the meeting to Mr. Hendren for the pleasure he had given them.

CORRESPONDENCE.

A LARGE NEGATIVE.

Sir,—As we are taking to ourselves the credit of having produced the largest negative ever yet taken from life (with a doublet lens), we would like to know if we are justified in so doing. Have you, or any of your readers, ever heard of as large a sized negative on record as 64 inches by 38 inches (sixty-four by thirty-eight inches), the dimensions of the one we have now produced ?—Thanking you in anticipation of your giving publicity to the above, we are, &c.,

Dublin. Werner & Son.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

7,743. John Joly, 39, Waterloo Road, Dublin, "Improved Method of Photographing in Colours."—*April 17th*, 1893.

7,851. Frederic Louis Perken, Edgar Theodore Perken, Arthur Rayment, and Henry Hunter, 34, Southampton Buildings, Chancery Lane, London, "Improvements in Photographic Printing Frames, or the like."—*April 18th*, 1893.

8,122. Joseph G. Reid, Woodlee Cottage, Bloomfield, Belfast, Ireland, "Magazine Plate Carrier, Slide, and Changing Box."—*April 22nd*, 1893.

Specification Published.

13,926. *August 2nd*, 1892.—"Cameras." J. F. Parsons, Siddington House, Kingsdown Parade, Bristol.

Relates to cameras and to films for use therein. The films are arranged in a pack, and are placed in a carrier inside the camera box, and acted upon by a spring, tending constantly to draw the carrier towards the lens. Each film is separate from the others, and each is provided with a tongue, which is extended forward to the front of the camera and made to project beyond a recess formed at the front for the reception of the tongues. After exposure of the foremost film, it is drawn up from the pack by the tongue aforesaid, and is pulled over the edge of a ledge, on which, after having been drawn, the film lies face downwards. The spring before mentioned advances the pack of films, so that each film is brought into focus in turn, and is drawn up after exposure as above described. Stops are provided for the films, so that they cannot be advanced beyond the proper focus. The films, as they are drawn out of the pack, are piled one over the other on the ledge aforesaid, and can be removed at will, the chamber into which they are drawn being light-tight. By observing the outer ends of the tongues, the number of films exposed may be ascertained, and as each film is drawn up the operator may sever the tongue at the recess through which it projects.

Printed copies of the full specification of above patent may be obtained by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

G. J. F.—We should advise you to inquire of Messrs. Marion, of Soho Square, who have a house in Paris, and could doubtless give you the information.

V.—The "Vegara" dark slide was introduced at the time when an attempt was made to place on the market a collodion film (produced by a formula due to the late Mr. Woodbury). For various reasons the enterprise failed. The back is a thoroughly good one, and can be used for celluloid films. It is more quickly charged than any other apparatus of the kind. We do not think that it is sold now, but Messrs. Stanley, of London Bridge, would know.

Photomechanician.—The following formula, published some time back by Mr. Carbutt, will, according to that gentleman, give great density, with absolutely clear glass, in the shadows. This, of course, is just what you want for line subjects :—

Sodium carbonate (crystals) ...	2 ounces.
Sodium sulphite	4 „
Bromide of soda, or potash	60 grs.
Water	60 oz.

To each ounce of this add from 2 to 3 grs. of pyro.

H. S. C.—Do not attempt to make the collodion yourself unless you are used to the work. It will be cheaper for you to buy it. The formula we gave is quite reliable.

Photos.—A hand dynamo is no use except for lecture-room demonstration. If of good form you can exhibit a tiny arc light at a great expenditure of muscular energy. Consult a professional electrician on the other matters.

M. M.—The methylated spirit which was sold until recently consisted of 90 parts by weight of rectified spirit, and 10 parts of wood spirit, and it answered for general purposes as well as pure alcohol. It can still be obtained through certain channels under certificate from the Inland Revenue authorities—apply at Somerset House. Methylated finish contains a certain quantity of gum in solution, and is unfit for any purpose except French polishing, for which it is intended.

Diatom.—Boil in nitric acid in a test tube. This will get rid of the gelatinous matter, and will leave the silicious skeletons uninjured. They must be subjected to many decantations in pure water to get rid of the acid.

A. A. J.—If the glass is yellowed by age there is no method that we know of for restoring it to its former whiteness.

A. Durer.—An old and effective method of cleaning an engraving is to place it on a sloping board, strew salt upon it, and wet it with a solution of citric acid. A better plan is to dip it in a solution of bleaching powder, followed by a bath of water just soured with sulphuric acid.

Mayflower.—Rodinal is a solution of paramidophenol combined with other agents.

Thirty Years' Subscriber.—A letter copying-book, with ever-moist leaves, was brought out some years back. We do not know the method by which the paper was prepared, but have obtained the same effect with a solution of magnesium chloride.

Zac.—Thank you for your good opinion. The matter shall receive early attention.

PATENT OFFICE

The Photographic News

A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1810. MAY 12, 1893.

NOTES.

We have received a preliminary circular referring to the Photographic Salon of 1893. This assumes the form of "an exhibition of pictorial photography," which will be held at the Dudley Gallery from October 9th to November 11th. The public will be charged the usual shilling for admission; but exhibitors will not be charged for space, neither will they receive any awards. The aim of the organisers is to "inaugurate a series of exhibitions (which, it is hoped, may be annual ones) bringing before the public the best productions of photography solely from a pictorial point of view." The list of names on the general committee includes many of our best workers.

On another page we print the report of the judges at the sixth annual exhibition of the Photographic Society of Philadelphia, by which it will be seen that a large number of English workers have received awards. We may mention that the catalogue of this exhibition is a most ornate production, its cover bearing an embossed gold-lettered title, and its pages interspersed with some capital photogravures.

Thanks to the landslip, Sandgate has recently had more than its fair share of attention at the hands of amateur photographers, who have crowded the place in order to obtain records of the fissures in houses and land which have unfortunately appeared there in such unwelcome abundance.

Although the landslip is now almost forgotten except by the unfortunate sufferers, we trust that some photographers were still lingering in the neighbourhood, for last week a remarkable sight, in the form of a mirage, was witnessed all along the coast between Sandgate and Hythe. Quoting the words of the provincial newspaper scribe: "The whole of the coast between Sandgate and Lydd appeared reflected in the sea not a stone's throw from the spectators. After an hour or so the illusion disappeared. At the same time the French coast appeared reflected within fifty yards of the English coast. Such a mirage has not been witnessed for over forty years."

A photograph of such an occurrence as this would be a great rarity. One or two pictures of alleged mirages we have seen, but we are sorry to say that they bore signs of being manufactured. As a rule such appearances are so evanescent that they escape before they can be caught with the camera, and it will be easily understood that such an effect requires an expert hand to secure it.

An anti-Home Rule meeting in the Corn Exchange, at Lincoln, forms the subject of a successful flash-light photograph by Mr. Slingsby, of that city. As our readers know, this gentleman has done much to place flash-light photography on a sound basis, and his system is one of the best which can be adopted.

Messrs. Adnitt & Naunton, of Shrewsbury, who are photographic dealers in that picturesque old town, have issued gratis to their customers an illustrated list of favourable routes for camera-bearers to take when in search of subjects. This is an excellent new departure, which might with advantage be adopted elsewhere. We all know how valuable time is lost in a strange town in seeking for favourable subjects for photography, and such a guide to the neighbourhood as that just described obviates all difficulty.

By the way, how much disappointment would be prevented, and how greatly would the average work of the tourist photographer be raised, if he were to make it a rule to indulge in what we may call a preliminary canter before the race. What we mean is this. Before taking out the camera, let the tourist walk through the district he intends to work in, and make copious notes of spots suitable for photography, such as the point of view, best time for satisfactory lighting, and so on. In this way are the best results achieved.

The opera-glass camera may be regarded as the photographic sea-serpent, or big gooseberry. It turns up from time to time as a novelty, retires into private life for a brief period, and comes round again with the regularity of clockwork. It was introduced about twenty years ago, and now appears again as a new-born babe in the pages of our French contemporary, *La Nature.*

The latest form of kodak, fitted with a detachable back so as to take roll-holder or plates at will, is a capitally designed camera, with a good lens and shutter. We obtained with it, the other day, well-exposed pictures under trees, using it as a hand camera, and employing a medium stop and snap exposure. The only fault which we can find with it is the position of the "button," which is at the side of the camera. It ought certainly to be in front, so that when aiming at a subject the operator pulls backward, as a rifleman does.

We have come to the conclusion that the light American form of double-back for plates is better than the more solid and highly-finished English article. Not in point of manufacture, for nothing can excel in this respect the well-made English model. But the latter, with its hinges and folding shutters, is more elaborate and necessarily more expensive than it need be. More time is required, too, in inserting the plates in the hinged backs. Manufacturers might with advantage turn their attention in this direction, and give us something more simple in construction. In spite of cleverly-arranged changing contrivances, double-backs are, we fancy, long destined to hold their own.

The annual report of the Committee of Visitors of the Royal Institution of Great Britain is of a very favourable character. The real and funded property now amounts to £104,000, and this has been entirely derived from contributions and donations of the members and others who have thus shown their appreciation of the work of the Institution. During the past year sixty-three new members were elected, and, curiously enough, the same number of lectures and evening discourses were delivered—one for each new member.

Our occasional contributor, Professor C. H. Bothamley, publishes in the *Journal of the Chemical Society* an exhaustive and interesting account of the mineral waters of Askern, in Yorkshire. Photographers are or should be interested in the subject of water contamination and analysis, and this masterly paper will show them to what a pitch of refinement such analyses have arrived in the hands of the careful experimenter.

"The old order changeth." One can see on Hampstead Heath just now an itinerant photographer pursuing his avocation without either tent or dark room. He employs a device, which has already been described in our columns, in which developer, fixing agent, and water are contained in three several india-rubber bulbs, and are squeezed on to the plate when required. A crowd gathers round the new-fangled apparatus, and the men with ancient arrangements look on askance.

There were probably many hand-cameras at work in London on Wednesday when Her Majesty opened the Imperial Institute, and, as usual, "Queen's weather" prevailed. Photographs of crowds are generally disappointing, and a London crowd—owing to "Sunday best" among the masses being black cloth—is more disappointing than most. But as Wednesday's concourse was interspersed with gay uniforms and spring dresses, it gave unusual facilities for photographic pictures.

Since process-blocks came into vogue we have heard much about reversed pictures and the necessity for that reversal. In pre-photographic days a similar procedure was occasionally adopted with copper-plate illustrations, presumably as a dodge to make the same design do duty twice over, simply as a matter of economy. We recently came across a curiosity of this kind in the shape of two prints of the same subject, reversed and having different titles. One is called "The Disconsolate Widow," and the other bears the title, "Story of Lady Fanny Beaumont and Lord Layton." At first we were somewhat puzzled as to the process adopted in this reversal, but close examination shows that one plate, although a copy of the other, exhibits slight differences, and is evidently engraved by hand. It is curious to reflect that at the time the work was executed—about eighty years back—artists were so scarce that it was worth while to repeat a composition in the manner described.

NATURALISTIC PHOTOGRAPHY.

BY P. H. EMERSON, B.A., M.B. (CANTAB.).

(*Concluded from page 279.*)

MR. BIRT ACRES remarked that Dr. Emerson had said that given a certain view, half a dozen photographers would produce exactly the same result from it; he was at issue with Dr. Emerson as to that statement. Half a dozen photographers would have half a dozen ideas as to the way in which the view struck them as a picture as to what conditions of light would be most suitable, what would be the best exposure to give, and so on. Moreover one man's ideal would be something very brilliant, another would try to produce a soft result, and the consequence would be that the representations of two photographers would differ as widely as those of two painters. Referring to Dr. Emerson's remarks as to photographers styling themselves artists, he (Mr. Acres) did not think the best workers in photography did so. It seemed to him that Dr. Emerson's idea of the artist-photographer had been gathered from men in provincial towns, who sometimes call themselves "artist-potographers" or even "scientific photographers." He thought photographers ought not to be ashamed of the title—they did not want "artist" tacked on at all. Even from the painter's point of view, "painter" was a better expression than "artist,' which might mean an "artist in hair" or an "artist" in making bricks or tiles. Let painters call themselves "painters," and let photographers call themselves "photographers."

Mr. T. R. Dallmeyer said the question of differential focussing laid down by Dr. Emerson was a reasonable matter, because if one looked at any particular point, concentrating the eye on it, that point was emphasised and everything else was duplicated, and this was in accordance with physiological law. Mr. Debenham appeared to have rather gone away from the real intent of the paper, which as a matter of fact did not discuss mathematical perspective. Mathematical perspective was a science, and psychology was not yet, even if it was ever to become one. If the question were one of measurement, no one could disagree with Mr. Debenham, but what he understood Dr. Emerson to mean was that we did not see things in mathematical perspective for psychological reasons. If Dr. Emerson's ground was firmly established, there was no doubt that the term "decorative" was a splendid one in connection with photography. He endorsed the opinion that a photographer did not want to call himself an artist. If he were an artist his works would speak for themselves, and he did not think the use of the word "artist" was of any real value.

The Rev. F. C. Lambert spoke of the importance of linking together the studies of physiology and psychology for any man who wished really to have knowledge sufficient to make him appreciate works of art of all kinds. With regard to the term "decorative," it seemed to him that all pictures were decorative; the word was just as applicable in a liberal sense to a most beautiful picture or piece of statuary as to a photograph. Such things must be utilitarian or decorative. If a picture had a very showy frame it might become furniture, but apart from the furniture of the frame he thought the main object of works of art was to please rather than to be of use, and in that sense a picture was just as much decorative as anything else. Therefore he was afraid there would be a difficulty in separating artistic from decorative productions.

Mr. Pringle, referring to the question of physiology, said he remembered that when Dr. Emerson first came to the front as a reformer of photographic art he spoke and wrote of the eye purely as an optical instrument, and he (Mr. Pringle) then pointed out the fact that he had altogether omitted to take into account the action of the brain, and that if they were to have their pictures exactly as the eye saw them they must be hung upside down. Dr. Emerson seemed to remain pretty much in the same place with regard to that point. As to the "decorative" matter, Mr. Pringle called attention to the fact that in Dr. Emerson's former vocabulary "decorative" was a term of opprobrium. He had called Mr. P. H. Newman "a third-rate decorative artist," and that term evidently did not find favour with him at that particular time. But in spite of all the changes of position that Dr. Emerson had displayed, the fact remained that the photographic world owed a great debt to him. Few would deny, and none could deny with truth, that Dr. Emerson did a very great deal not many years ago towards turning the attention of photographers to the attainment of improved artistic results. It was quite true that many who were more or less his pupils and disciples had thrown him overboard and did not admit allegiance to him; but the fact remained that he did undoubtedly inaugurate a great improvement, not only specifically but generally, in photographic work.

Colonel Gale said it was very pleasant to find Dr. Emerson coming out of his seclusion, but he was afraid that while there he had learned some hard terms and phrases. He was disappointed to find Dr. Emerson still comparing or contrasting the painter and the photographer, of which he could not see the necessity or the desirability. Photography had its own independent course to pursue, and could be carried on and stand on its own merits without reference to the painter's view of things. Let the photographer learn all he can from the painter, but if he attempted to do what the painter invariably did he would fail. The painter conventionalised Nature when he set himself to paint her; the photographer could not do that. If a painter tried to rival the lens he would fail ignominiously, and if the lens tried to do what the painter did it was equally sure to fail.

The President confessed himself only a maker of photographic maps of the country or the face as the case might be, and he left the rest to those who had time and brains for it. Whatever might be the outcome of the discussion as to naturalistic photography, Dr. Emerson himself was the outcome of it; he had come out of his shell, and they hailed him as entering once more into the photographic ranks. They all knew the beautiful things he had produced, and the marked effect he had had on photographic art from the time when he first gave vent to his views and showed his pictures. Whether the school he had influenced was going to last was for the public to determine. For himself (Captain Abney) he was quite content to take sharp photographs and leave the "fuzzy" ones to take care of themselves; perhaps the "fuzzy" school would some day go to the wall, and then he would be in the fashion again. Psychology, he said unhesitatingly, was not a science; there was nothing exact about it, and at present it changed almost from hour to hour.

A vote of thanks was accorded to Dr. Emerson for his communication, together with an expression of regret at the cause which prevented his attendance, and also to Mr. Dallmeyer for reading the paper.

DETERMINATION OF PLATE SPEEDS.

BY G. F. WILLIAMS.

BEFORE commencing my paper, a few words are necessary to explain the reason of my appearance before you this evening. Those of you who read the *British Journal of Photography* may have noticed that, on January 27th and February 3rd, there appeared two articles over my signature headed, "Determination of Plate Speeds." Immediately following publication, there also appeared a mass of correspondence, some of it of a very violent tone, and most of it irrelevant to the question at issue. To this correspondence I replied briefly, to the effect that I should abide by my experiments; and such was my courage of my own opinions that I offered to submit *everything* to a disinterested jury, and I further offered to repeat any individual experiment such jury might select. To this challenge none of my dissentients have responded. It might be thought that, in making such offers, I would be pretty safe, by reason of the disinclination of any of these parties to try conclusions with me, especially when so wide a chasm separates us in the views we hold of the theory involved in the matter; but, as I was not disposed to allow this subject to rest where it was, it is with full belief that I shall be fairly dealt with at your hands that has prompted me to lay before you an account of *my* "investigations," accompanied by examples. I thereby constitute the London and Provincial Photographic Association my jury, and I shall be glad if you will accord me a patient hearing.

In bringing this subject before you, I am assuming that most present will have read my previous remarks in the *British Journal of Photography* of January 27th and February 3rd. In case any have not, I will endeavour shortly to outline them.

You may be aware that some three years ago Messrs. Hurter & Driffield published their "Investigations." Beyond creating some surprise in photographic circles, I am not aware that their remarks produced any further effect than what might have been expected from the publication of matter of so distinctly controversial a character. Many of their conclusions were so totally at variance with the preconceived notions of most photographers, including myself, that, like other things, one might have expected the subject would be a nine days' wonder, and then fall into oblivion; but, for reasons best known to themselves, certain manufacturers of dry plates have thought fit to adopt the system introduced by these gentlemen, and have issued boxes of plates marked on the outside with speed numbers in accordance with the method of Messrs. Hurter & Driffield. I, like others, have been a purchaser of these plates. Without recapitulating much that has already been published in my previous articles, suffice it, perhaps, to say I think it is beyond controversy that, if we purchase plates bearing speed numbers according to *any* method or system, we have a right to demand that the goods so sold shall be what they are represented. From the dealers and from the makers direct I purchased many boxes of plates, bearing speed numbers of 37, 80, 95, 100, 135, and 140. I tried a variety of experiments in different ways, to ascertain whether the relative speeds, as indicated on the boxes, were borne out in actual practice, and I finally adopted the method of exposing two competing plates side by side in a stereoscopic camera. I need not dilate upon the accuracy of this method beyond any other known method of competitive camera comparisons of the sensitiveness of different plates. Supposing the possibility of error, the method I adopted of making duplicate, and even triplicate, tests, and thereby reversing the positions of the plates, at once serves to expose any error, and enables one to judge with accuracy any difference in results.

As you will see by the examples I will hand round, the subject was one well calculated to test the rapidity of plates against one another, and very fine shades of extra sensitiveness in one or the other of any given pair of competing plates could be readily observed. I must point out to you where the variations in sensitiveness are chiefly to be detected. The stove you see in the negatives is dead black, and stands within the recess of a dead black grate. You will detect differences, where it exists, in the sensitiveness by closely examining all around these dark parts, and in the relief ornament of the grate, the horseshoe form of which is visible in some plates and not in others. Another point for the detection of sensitiveness will be found in the detail, or the absence of it, in the clothing hanging in the corner in the shade of the chimney-breast. When examining each pair of negatives, I must ask you to read the explanations written at the foot of each, and also to bear in mind the conditions involved in producing each pair. Since I mounted these examples, I have gone over them and marked in red ink my estimates of the percentage differences in their sensitiveness, together with other remarks, in accordance with my published list of experiments on pages 69 and 79 of the *British Journal of Photography*, copies of which are on the table.

Messrs. Hurter & Driffield have said that I cannot estimate differences of ten per cent. If I tell you that in several instances, in order to check my estimates, I gave the additional exposure to the slower plate, and thereby obtained identical negatives, as far as two different emulsions will yield two similarly exposed negatives, I think you must give me credit for knowing what I am talking about; and I shall leave you to judge of the general accuracy of my estimates, of which a large number are submitted to your inspection.

Now let me add a few words of explanation of the method of development employed. I have previously stated that the plan on which I proceeded was to give such exposures as would leave me the shadows—even the very deepest shadows round the stove—clear up to the end of prolonged development. The plates were developed by the formulæ of the manufacturers, and development was, in every instance, carried on until no further detail would come. Any attempt to ascertain differences of sensitiveness by developing for any arbitrary length of time must, in my opinion, result in unfairness to one or other of the plates under trial, and especially so if they are of different makes. I maintain that by the treatment I adopted can we alone discriminate differences of sensitiveness between competitive plates without favouring or prejudicing either one or another. If, with a given exposure of identical duration for a pair, one plate shows, under prolonged development, greater detail in deep shadow, I should certainly say that plate is the more rapid of the two. If I verify this result by making a repeat, or yet a third test, no room for doubt exists. I must point out in connection with this, that if we expose so as to get a pair of *fully* exposed plates, on development the pair, even if of different makes and sensitiveness, will frequently appear almost identical, and I must insist that full exposures or over-exposures are no tests whatever of the rapidities of plates. In all experiments of this class some little heed must be given to the thickness or thinness of the coating, which does influence the result, but least of all in those parts the least exposed, viz., in the deepest shadows.

Judging from the tone of the correspondence I have alluded to as following my original articles, one might imagine that when I wrote them I had sat down with the deliberate intention of demolishing the Hurter-Driffield theory, or that I had some especial grude against plates "speeded" in accordance with that method. As a matter of fact, I had no such idea, and I disclaim any intention other than that of putting to the test of actual use the plates so marked, to ascertain whether they bore out the theory. This they failed to do; and I am left to adopt either of two conclusions:—

(*a*) If these plates had ever been submitted to examination in an instrument of precision, such as we are led to believe the Hurter-Driffield modification of Bunsen's photometer is, then I say, if the system is right, the plates are wrong, and the examiners either do not understand the system or they have blundered.

(*b*) If, on the other hand, these plates have been accurately examined and "speeded" by the system, then the system is wrong, for the plates most certainly are incorrectly marked, and do not carry out the system.

I have already alluded to the tone of the correspondence, I don't know that I should have noticed it but that the damning admissions made by one of the writers affords me the opportunity to expose what is either gross ignorance or a wilful perversion of facts. This brings me to another branch of my subject not previously dealt with.

Just let me read you two extracts from letters already published. The first is from a letter in *Photography*, January 26th last, page 63, and is signed "Platemaker." He says:—

"So little does the question of daylight *versus* candlelight come into practical effect that Mr. Driffield tells me that even ortho plates, as far as he is able to observe, are correctly read by the candle for ordinary daylight exposures."

The next is from a letter in the *British Journal of Photography*, February 10th last, page 94, and is signed by James Cadett. He says:—

"I now come to the candle question. It is manifest that, provided that all makes of plates obey the same constant in the relative sensitiveness to candlelight and daylight, it does not matter a fig what that constant may be. Do plates obey the constant, generally speaking? All that I can say is this, that, after hundreds of tests, neither Messrs. Hurter & Driffield, Mr. A. Cowan, nor myself, are able to say that plates vary in this respect. Even orthochromatic plates for ordinary landscape work obey the same constant very well, though, of course, it is easy to see that under certain conditions of screen and light such plates would require a different constant."

Now, gentlemen, I am not quite so intent upon pointing out to you the strong family likeness that exists in these two letters (which may possibly be the result of accident) as I am anxious to inform you that the statements there made are absolutely incorrect and untrue so far as orthochromatic plates are concerned. Whilst I am sorry that such erroneous dogma should get publicity, I feel compelled to adopt the only course open to me, which is that of giving it a deliberate contradiction, and now I am going to prove it to you.

The pair of specimens (mounted on opal glass to make them very easily judged) which I shall place in the Chairman's hands were produced in the following manner. Taking a box of "Ordinary" plates and another of "isochromatic medium" plates, we shall find their rapidities to daylight very nearly equal, and these will enable us to make a most conclusive experiment. I cut two plates down the centre, and take half of each to an experiment. I place a simple graded screen in an ordinary printing frame, and put half an "ordinary" plate and half an "isochromatic" plate thereon, and expose briefly to usual daylight at midday. The result of this exposure, developed to completion, will be found on the right hand of the specimen, and is marked "*daylight.*" You will probably agree with me that their sensitiveness to daylight as read by this means will be about two points in favour of the isochromatic plate, viewing the densities as transparencies.

I then take the other two halves of these plates, and place them just as before, but instead of daylight I submit them to candle-light. As a matter of fact, the pair at the left hand had ten C.M. seconds. You will see that even ten C.M.S. impress the "iso" plate to such an extent as to reveal the last grade of the screen (16) with great force, whilst the "ordinary" plate responds in a remarkably feeble manner. A longer exposure, such as fifteen C.M.S. or twenty C.M.S., will give you a better reading on the "ordinary" plate; but so sensitive are the "iso" plates to candle-light that great density results up to the full scale of the screen, and the comparative readings are valueless. As it is, and viewing these results by transmitted light, I think you will allow that there are from ten to twelve points in favour of the "iso" plate, and to verify this the Chairman shall be at liberty to cut the specimens off the opal glass after they have been all round, and then compare the relative gradations. Viewed by reflected light, the difference is even greater.

Now, gentlemen, how do you find it? On the one hand look at the two letters of "Platemaker" and Jas. Cadett, and, on the other hand, weigh these experiments! Please accept my assurances that these experiments have been repeated over and over again, and always with a like result. Do you find that ordinary and isochromatic plates obey the same constant—the candle, or do you think with me that any one who could be rash enough to make such an assertion must surely have forgotten the very *raison-d'être* of isochromatic plates?

If I needed confirmation of the results I place before you, I need but refer you to an article bearing strongly on this very subject, by Mr. Debenham, and you will find his experiments recorded on the very same page of the *British Journal of Photography* (page 69) as my own. As this page is before you, please refer to Mr. Debenham's figures. He gives you for camera exposures with daylight, "ordinary" and "isochromatic instantaneous," equal periods; but for lamp-light you will see he fixes the rapidity of the "isochromatic" plate at no less than *eight times* that of the ordinary.

With no intention of either attacking the system nor yet of interfering with any man's trade, I repeat that my object has been solely to ascertain whether and how far the theory and the practice of determining the speed of plates would accord, and in the alternative as to whether the theory could be of any assistance (or otherwise) to practical photography. If time permitted, I should like to have read to you a leader from *Photography*, signed "A.P.," and dated March 2nd. As it is, I must content myself with a short excerpt therefrom. Alluding to Messrs. Hurter & Driffield, the writer says:—

". . . . If they mean that, after all, we can materially control our practical results by controlling the developer and the following operations, then no more need be said; but, with their writings before us, we must say that it is by no means clear what they do mean in the matter."

As I have not found that the theory of these gentlemen has been borne out by the plates issued in conformity with their system, I decided to place my findings on record; hence all this storm, and hence, also, my appearance before you this evening, which I determined upon even if it involved further encounter with my cavillers, or entailed a recital of the tenets of my photographic creed.

I trust that the subject may have interested you sufficiently to induce discussion whereby we may gain photographic knowledge, and endeavour to arrive at perfection and the truth.—*London and Provincial Photographic Society*.

PHILADELPHIA'S SHARE IN THE DEVELOPMENT OF PHOTOGRAPHY.

BY JULIUS F. SACHSE.

IT is well known to most persons that photography is, with the exception of the art of printing, the most widely disseminated art-science throughout the world.

Within a few decades, modern photography has penetrated into every quarter of the known world; and the vast space within the limits of the lately explored ice cap of Greenland to the tropical jungles of equatorial Africa, has been conquered and brought into subjection in the interest of general information by the modern dry-plate and the perfected lenses of the present day.

It is but a little over half a century, or, to be exact, just fifty-three years ago, when the first account of Daguerre's process reached America by the slow and uncertain methods of communication of the day. And when the news arrived it was published, only to be received by nearly everyone with suspicion and ridicule; and the whole matter was set down by scientist and scholar as another grand hoax, similar to the one sprung upon the scientific world a few years before in connection with Herschel's great telescope.

However, the doubt and uncertainty were soon dispelled by a member of this Institution, after which the development of the process was rapid and steady.

Although it is but a question of half a century, few persons at the present day are aware that photographic portraiture is a Philadelphia invention, or how great is Philadelphia's share in the development of photography, and that the present perfect state of universal photography was brought about mainly by Philadelphia investigators and experimenters, their efforts being fostered by two of Philadelphia's scientific institutions: the first of these, the American Philosophical Society, the oldest and then most active and important scientific society in America: the other one, though in its comparative infancy, lacked none of the vigour of its more mature rival, and now, after an active life of almost three-fourths of a century, stands as an acknowledged scientific centre in the world. I allude to the Franklin Institute.

Daguerre, after the first promulgation of his process, and the vote of a pension by the French Chamber of Deputies, never did anything towards the improvement of his invention. It was left to the experiments of others to give the process a practical and commercial value.

To a Philadelphia scientist is due the improvement to Daguerre's process as originally promulgated, which made its universal application possible, and in reality forms the basis of the whole photographic structure of to-day. I have reference to the application and use of bromine as an accelerator by Dr. Paul Beck Goddard, of Philadelphia.

In connection with this subject, I will advance the following claims for Philadelphia in the development of photography—viz.:

(1) That Joseph Saxton, of Philadelphia, made the first heliograph in America, October 16th, 1839.

(2) That Robert Cornelius, of Philadelphia, and a member of the Franklin Institute, obtained the first picture of a human face ever taken by Daguerre's process, November 1839.

(3) That to Dr. Paul Beck Goddard, of the faculty of the University of Pennsylvania in Philadelphia, belongs the honour of the discovery of bromine as an accelerator, December, 1839.

(4) That Dr. Paul Beck Goddard, of Philadelphia, was the first person in the world to obtain an instantaneous picture by heliography, December, 1839.

(5) That William G. Mason, of Philadelphia, obtained the first perfect picture in the camera by aid of artificial light, December, 1839.

(6) That the first portrait studio in America, or more strictly in the world, was opened in Philadelphia, February, 1840, by Robert Cornelius, at the north-east corner of Eighth Street and Lodge Alley.

(7) That the first heliograph ever entered for exhibition was one by Dr. Joseph E. Parker at the tenth exhibition of the Franklin Institute, held in October, 1840, at the old Masonic Hall, in Philadelphia.

(8) That Joseph Saxton, of Philadelphia, in 1841, produced the first photo-mechanical reproduction for use with printer's ink, which combined in its production the daguerreotype, electrotype, and a mechanical process.

(9) That the first successful attempts at interior photography were made by Dr. Paul Beck Goddard, January, 1840, at the Academy of Natural Sciences, at the southeast corner of Twelth and Sansom streets. The originals are still in existence.

I will further state the daguerrean portraiture had actually ceased to be a novelty in Philadelphia long before the process was even introduced elsewhere in this country, or was practised in Europe.

To establish this fact, it is but necessary to refer to the *Public Ledger*, of October 12, 1840, where in the account of the tenth exhibition of the Franklin Institute, then in progress, it states :

"Throughout the room are various specimens of the daguerreotype. They consist chiefly of miniatures."

The first authentic account of Daguerre's process to reach America was a letter written in Paris and sent to Alexander D. Bache, a member of the Philosophical Society and of this Institute. This letter which embodied the whole secret, then first made public, was published in the *United States Gazette*, September 25th, 1839, with an introduction in which it was stated that some steps of the process are not explicable by known laws. This account set forth the crude process of Daguerre, as first publicly announced to the Chamber of Deputies, in Paris, August 19th, 1839. It was republished in the *Journal of the Franklin Institute*, for September, 1839, without a word of notice or comment. This was followed in the next *Journal* (October, 1839, p. 287) with an account from *Galignani* of three street scenes in Paris, taken from Daguerre's atelier, which were exhibited before the Chamber of Deputies at a meeting subsequent to the one held August 19th.

Notwithstanding these repeated notices of the heliographic process, no action whatever was taken upon the subject by any scientific institutions, the published accounts thus far being looked upon as unworthy of serious consideration.

A few weeks later, however, a more detailed account reached America ; this was from an eye-witness, who was a special correspondent of the *New York Star*. It was published October 14th, 1839, and gave an account of the public demonstration given by Daguerre on the 17th of September at the Grand Hotel, on the Quay d'Orsay.

So sceptical were the Parisians of Daguerre's claims, and so great was the popular opposition to the grant made by the deputies to the inventor, that to silence public clamour the Minister of the Interior ordered Daguerre to give three public demonstrations of his process, so that the interested public might judge whether the deputies were justified in pensioning Daguerre for the disclosure of his process.

This account was reprinted in the *American Daily Advertiser*, October 16th, 1839. So crude was Daguerre's method, as shown by this account, that the time occupied to produce this single picture was one hour and twelve minutes.

Among those whose notice was attracted to the publication of Daguerre's process was one Joseph Saxton, an attaché of the United States Mint in this city, a man of culture and great scientific accomplishments. When Saxton read this account as published, it seemed so clear and feasible, that he at once concluded to try the process according to the directions set forth in the newspaper.

A cigar-box was improvised as a camera, while an ordinary burning glass, consisting of a convex lens, was fixed in one end and made to do duty as an objective. A pasteboard seidlitz-powder box, containing some flakes of dry iodine, and a cut-out in the lid somewhat smaller than the plate, answered the purposes of a coating box. For a mercury bath, the ingenious experimenter mortised a block of hard wood, attaching underneath a globular bottom of sheet iron, so as to hold the quicksilver and allow the application of a spirit lamp beneath. A piece of polished silver ribbon, such as coin blanks are cut from, served in lieu of the copper plates.

When all these preparations were completed, the ingenious Saxton set his apparatus on the window-sill of one of the second storey north windows of the Mint, and pointed it north-eastwardly toward the sunlit buildings beyond. After the exposure, the instructions in the newspaper were followed to the letter amidst the ridicule of the other attachés who were present, but, to the great surprise of the latter, and the joy of the experimenter, the attempt resulted in a perfect picture. There, permanently impressed upon the silver plate, was the picture of the old Philadelphia High School and the State Arsenal, which then stood upon the site.

Joseph Saxton had proved the truthfulness of the published account of Daguerre's invention, and had made the first heliograph in America. On the next day, Saxton succeeded in making several other pictures of different buildings, all of which were taken from the same window.

(*To be continued.*)

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, MAY 12, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PINHOLE EXPOSURES.

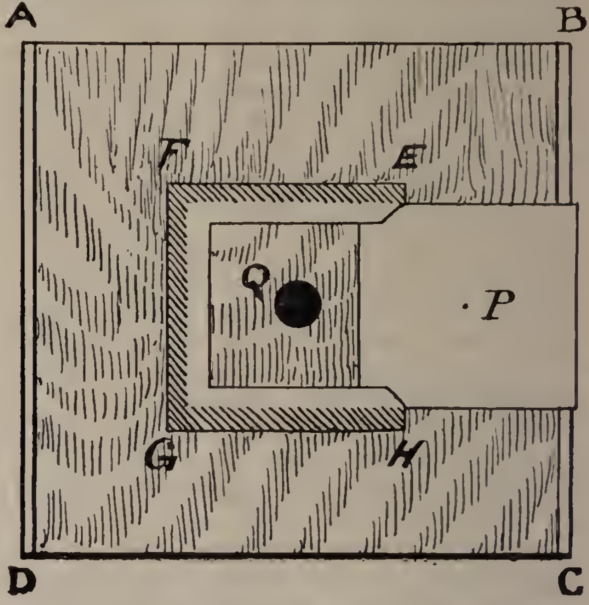
BY REV. F. C. LAMBERT, M.A.

It has been wisely said that there is a use for everything if we only knew and could find it. This seems certainly true as regards the use of a pinhole for making photographic exposures. From time to time the "present writer," like the "gentle reader," no doubt, has felt prompted, tempted to make a random, guess-like exposure with a pinhole. But from the outset two circumstances concurred to defer these departures from the strict and orthodox path of photographic rectitude.

In the first place, few of those who have learned to look upon certain lenses as well tried and trusted reliable friends will care to be at any expense for the sake of satisfying a passing whim, by buying any of the various pinhole contrivances now on the market. In the second place, supposing the possession of such apparatus, the old hand who expects to average a dozen good negatives from every twelve exposures will feel some just hesitation before taking a leap in the dark as regards the time of exposure to be given with the "new notion." On these two points possibly the experience of the aforesaid erring and contrite present writer may smooth the steps of those who would in like manner make in desperation a bold detour from his accustomed path.

First, then, as to a temporary home-made apparatus. It is presumed that the camera has a loose front. From a sheet of *stout* mill or straw board cut a piece to fit exactly the square front opening (see Fig. A, B, C, D). In the exact middle (*i.e.*, where lines drawn from opposite corners, A, C; B, D intersect) cut a circular hole, Q, about ½ inch in diameter.

Now cut out of thin black card (or, failing that, two thicknesses of stout black needle paper, gummed together and dried under pressure so as to be quite flat) a piece about 1½ inches wide and about 3 inches long. This we may call the sliding piece, P, and will contain the pinhole.



Next cut out, of appropriate size, the three-sides-of-a-square-shaped piece, E, F, G, H, in thin, flexible, dark coloured cardboard, such that it is about half an inch larger each way than the sliding piece P.

The piece E, F, G, H, is now gummed to the square front A, B, C, D, by the shaded outer parts only, in such manner that the sliding piece, P, passes under its free edges, and yet is for all practical purposes light-tight. It now only remains to make A, B, C, D fit light-tight into the camera front by gumming all round its edges a strip of velvet ribbon. We may now make our pinholes, taking care to do this so that when the sliding piece P is pushed "home" in its groove the pinhole may come in the middle of the larger hole, Q. Each sliding piece will be pierced with one hole only. The pinholes may readily with some little care be made by burning the hole in the piece P by means of a needle point made red-hot in a candle flame.

The following approximate diameters will be found generally useful—viz., $\frac{1}{50}$, $\frac{1}{44}$, $\frac{1}{35}$, $\frac{1}{25}$ of an inch. It will be observed that they form a series of which the area openings are such that the corresponding exposures are in the ratio of 4, 3, 2, 1.

It now remains to form some approximate idea as to correct exposure. With this end in view, the accompanying table has been worked out, and based upon two ideas only. These are, *firstly*, that the exposures will vary directly as the quantity of light admitted by the holes, the areas of which vary directly as the squares of their diameters; and *secondly*, that the exposure will in like manner vary inversely as the square of the distance of the hole from the plate. Thus it will be seen that no account has been taken of the effects of interference, diffraction, &c.

Furthermore, it should be clearly understood that the table annexed is in no sense absolute, but is offered as a "first aid" for comparative purposes, and is presumably only likely to be of interest or use to those who may be presumed to have already accumulated some store of actual experience in lens work. Thus an entirely arbitrary but convenient standard or unit of comparison had to be selected. The one chosen was "ONE SECOND AT *f* 16."

To illustrate the use of the table, let us suppose that the old hand considers that with a certain light, plate, subject, &c., a lens working at *f* 16, an exposure of *one second* would be satisfactory. Then, under the same circumstances, light, plate, subject, &c., the smallest hole in the table, viz., $\frac{1}{50}$ inch, at distance of 8 inches from plate, would require an exposure of 10 *minutes*; the same hole, at a distance of 14 inches, would require 32 minutes. Or if the $\frac{1}{35}$ inch hole be used, at 14 inches from plate, then the exposure would be 15 minutes, and so on. Or again, if with *f* 16 lens the exposure is calculated to be 3 seconds, then the numbers in the table must be multiplied by 3—*e.g.*, $\frac{1}{25}$-inch hole, at 14 inches, would require (3 times 8) 24 minutes.

Or again, suppose experience points under certain circumstances to an exposure of 1 second with lens at *f* 32 as being correct. Now 1 second at *f*/32 is equivalent to ½ second at *f* 22 or ¼ second at *f*/16. Thus, under these circumstances, the numbers in the table must be divided by 4—*e.g.*, 1 second at *f* 32 is equivalent with hole $\frac{1}{44}$, at 16 inches to (¼ of 32) 8 minutes, and so on.

The table has been tested on several different occasions by exposing two plates as quickly as possible one after the other, from the same standpoint, the former being exposed by the lens method, the latter by the tabulated pinhole equivalent; and the two plates developed, either side by side or with a developer identical in its components. Prints from these pairs of plates seem to show that the table may be taken as a working first aid, and the negatives seem to agree remarkably well as regards the equality of light effect.

Pictorially, several interesting differences are brought to notice. This is, however, not the place or opportunity to dwell upon these points, beyond expressing the general conclusion which they seem to indicate—viz., that the pinhole is not the philosopher's stone for converting everything into a picture. Nay, rather, that the pinhole is to be regarded as an interesting and helpful apparatus, which, under exceptional circumstances, may and does yield results more pleasing or less unpleasant than those procured by means of a lens under the same conditions; but, at the same time, is more akin to medicine rather than a staple article of photographic food—a surgical instrument for critical cases rather than an apparatus or appliance of constant and widespread use.

Anyone who will take the trouble to make two exposures of the same object will find a comparison of results of real use. It will not be denied that where the nature of the subject is such that any pictorial value it may have is detracted from by a multiplicity of undesirable detail, then, in such case, a pinhole negative will probably yield a result which not only compares favourably with a lens product, but in cases will yield one with markedly preferable qualities.

TABLE OF COMPARATIVE PINHOLE EXPOSURES.

If with a given plate, light subject, &c., and a *lens working at f*/16 the correct exposure be *one second*, then, under the same circumstances, the following table gives the *corresponding exposure in minutes.*

Distance of hole from plate.	Diameter of hole in inches.†			
	$\frac{1}{50}$	$\frac{1}{44}$	$\frac{1}{35}$	$\frac{1}{25}$
6	* 6 min.	4½		
8	10	*8	5	
10	16	13	8	
12	24	18	*12	6
14	32	24	15	8
16	40	32	20	10
18	...	41	26	13
20	...	...	32	16
24	...	...	...	*24

EXPOSURES AT VARIOUS APERTURES EQUIVALENT TO ONE SECOND AT *f*/16.

Aperture	*f*/4	*f*/5·6	*f*/8	*f*/11	*f*/16	*f*/22	*f*/32	*f*/44	*f*/64
Seconds	$\frac{1}{16}$	⅛	¼	½	1	2	4	8	16

* Indicates region of distance of hole from plate for best definition with each hole—*e g.*, $\frac{1}{25}$ gives best definition from 20 to 24 inches away from the hole.

† An ordinary No. 9 sewing needle is about $\frac{1}{49}$ inch in diameter, a No. 10 is $\frac{1}{54}$, a No. 8 is $\frac{1}{44}$, a No. 6 is $\frac{1}{34}$, a No. 2 is $\frac{1}{23}$, and No. 3 is $\frac{1}{26}$ inch diameter respectively.

A millimeter is ·03937079, or very nearly $\frac{1}{25}$th, of an inch.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

SIXTH ANNUAL EXHIBITION—1893.

REPORT OF THE BOARD OF JUDGES.

THE Board of Judges appointed by the Exhibition Committee of the Photographic Society of Philadelphia to award silver medals for the best exhibits of artistic, technical, and scientific photography shown at the sixth annual exhibition, held under agreement between the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club, respectfully report that they have carefully examined all the exhibits, and have made the following awards :—

George Bankart, Leicester, England.
52 In the Trossachs
57 Cottage at Welford, Gloucestershire
2 Lantern Slides—Cottage Subjects

Francis Blake, Auburndale, Mass.
42 Instantaneous Studies
43 " "
44 " "

Winifred S. Clow, Philadelphia.
23. Making Apple Butter
26 Solid Comfort
30 Struck it Rich

John E. Dumont, Rochester, N.Y.
1058*a* Hard Luck
1058*b* The Solo
1061 The Connoisseur

R. Eickemeyer, jun., Yonkers, N.Y.
733 Gathering Lilies
737 Mistress Dorothy

Miss Emma Justine Farnsworth, Albany, N.Y.
918 Orpheus
919 Ode, xxxiv. Anacreon
922 Friends

John H. Gear, London, England.
48 Lantern Slides

William Gill, Colchester, England.
1017 Portrait
1020 "Kittie"
1028 "Kittie"

Karl Greger, London, England.
193 Sunset on the Lower Thames
194 In the Welsh Mountains
196 Home from Ploughing

Edgar G. Lee, Newcastle-on-Tyne, England.
12 Lantern Slides

R. H. Lord, Cambridge, England.
176 Try Again
177 Work and Play
178 How's That ?

W. P. Marsh, Bognor, England.
393 After a Sou'wester
394 "What are the Wild Waves saying ?"

Charles L. Mitchell, M.D., Philadelphia.
347 On the Banks, Durham
370 A Fisherman's Home, Clovelly
40 Lantern Slides—Swiss Views

Clarence B. Moore, Philadelphia.
3 The Coming Race
6 Gimme a Light
13 Tickled to Death

George M. Morgan, Boston, Mass.
792 Portrait Study
795 " "

E. Obernetter, Munich, Germany.
933 Landscapes
937 "
938 "

Charles R. Pancoast, Philadelphia.
375 Evening on Montauk
376 Near Waterville, Conn.
377 An Afternoon in the Berkshires

Robert S. Redfield, Philadelphia.
848 Study of Sheep
849 Navigation
850 Landscape with Cattle

Charles Reid, Wishaw, Scotland.
231*e* Studies of Animals
231*f* " "
232*g* " "

Ralph W. Robinson, Surrey, England.
269 "It was a Lover and His Lass"
271 "A Primrose by the River's Brim"
272 Dying Day

Alfred Stieglitz, New York.
513 The Card Players
514 A Nook in Pallanza
523 At the Brook

Frederick Thurston, Luton, Bedfordshire, England.
198 Our Village
206 Changing Pasture

F. B. Warner, Philadelphia.
1031*d* Fountain of the "Fall of the Waters," Mexico
1031*f* Entrance to Mexican Country Grave Yard
1032*g* Canal Street, New Orleans, La.

G. West & Son, Southsea, England.
3 Lantern Slides—Yacht Racing Scenes

W. Clement Williams, Halifax, England.
160 Marine Study
163 Where Flowers Bloom

W. W. Winter, Derby, England.
290 The Student Fair
291 Comparing Notes

BOARD OF JUDGES.—James B. Sword, Thomas Hovenden, George W. Hewitt, Robert W. Vonnoh, and John C. Browne.

EXHIBITION AT BIRMINGHAM.

THE Birmingham Photographic Society's Exhibition opened on Tuesday last, in the spacious Hall of the Young Men's Christian Association, in Needless Alley, a room which has the advantage of a very central position in the town, and the disadvantage of a very squalid approach. The situation can hardly be described as a quiet one, at least it was not so at the time of our visit, for there was a street organ of the most aggressive type outside, and a meeting going on upstairs, whereat several Christian young men, with fine lung capacity, were giving vent to their feelings in song. The mingling of the sacred and profane harmonies was not conducive to that calm frame of mind in which works of art should be approched, but we did our best to review the pictures, in spite of being betwixt the two fires of vocal and instrumental uproar.

The Birmingham Society may certainly be congratulated upon their exhibition generally, but it is cut up into too many classes. There may be some occult reason for this, and we think that the arrangement would be justified if a very large number—say a thousand or two competitors—had had to be catered for; but in the present case, where the average number of pictures in each class is about ten, the exhibition is unnecessarily chopped up into sections.

In the First Class, which is devoted to instantaneous work, there is not much to call forth admiration, and it seems almost a pity that the medal was not withheld. As it is it has been awarded to a mediocre street scene, which, beyond being a clear photograph, has little to recommend it. Possibly the judge was in this case won over by the foremost figure, that of a man apparently standing on one leg on the kerbstone. Mr. Southall's football scenes were, we think, more worthy of commendation as being a little more out of the common, and subjects which required more preparation and care in execution.

In the Second Class, "Clouds," there are some interesting pictures—platinotypes predominating here as they do in the exhibition generally. Mr. Simkins contributes three good pictures to this class, and takes the medal for one of them, while Mr. Manley is honourably mentioned. In the Landscape Class (No. III.) Mr. H. W. Southall wins the medal for a very pretty picture of an ugly mill, which, with the aid of river, rushes, and careful choice of position for the camera, he has turned into a thing of beauty. The landscapes as a whole are decidedly weak, a circumstance which may be accounted for by remembering that the members of the Birmingham Society have much engaged themselves in making a pictorial survey of their beautiful county, and have naturally turned more attention to the lovely old buildings which are found there in such profusion than to landscape pure and simple. We find this out when we come to Classes VIII. and XI., which are devoted to Architecture, Interior and Exterior respectively, in which the pictures are many in number as they are good in quality.

Class IV., comprising six transparencies, has not tempted the judge to make any award, and Class V. (enlargements) is certainly a poor one, the medal going to W. Jones for a picture of the Cross at Henley-in-Arden. This, as an enlargement, is technically good, but is artistically very poor. Portraiture (Class VI.) is also weak. The prize, in this case a cup, has been awarded to Mr. A. J. Leeson for the picture of an old man, which is natural and pleasant to look upon. It is soft without being fuzzy.

The Lantern Slides, Class VII., has not attracted so many workers as we should have expected. Mr. E. C. Middleton's work is the best here, and he has taken the medal. Mr. W. T. Greatbatch may be congratulated on having two of his slides marked "Hon. Mention," out of his small batch of three, the same distinction having been accorded to Mr. W. Rooke for his "Edge of the Forest."

As already indicated, the Architectural Classes are rich in contributions. A very beautiful interior is that of the drawing room, New Hall, which reminds one of Haddon Hall, Derbyshire, in its general features, only that it is furnished, and therefore makes a more satisfactory picture. The work is that of Mr. J. H. Pickard. Mr. E. C. Middleton and Mr. Simkins both send good pictures to this class, the latter gentleman taking the medal for a beautiful "Tomb in Alcester Church." Mr. Simkins also takes another medal in the Companion Class for his exterior view of the Chapter House at Much Wenlock. The Genre pictures grouped together under Class IX. are of a very ordinary type, and the silver medal goes to one which hardly deserves the distinction. It is called "The Wheelwright," and is by Mr. C. J. Fowler. A better title for it would be "His Carte de Visite." The hand-camera work (Class X.) is hardly up to the average, and no medal has been awarded. Mr. T. Taylor's "Yachts on the Clyde" are decidedly good, and he has been fortunate enough to secure clouds in his pictures which give them a completeness which is satisfying to the beholder. In the Seascape Class the medal has been awarded to Mr. A. J. Leeson's "On the Coast," in which there are too many boats crowded together for pictorial effect. In this class are three little gems by Mr. Whitworth Wallis, who has happily combined rough seas with darkened skies. The Flower Class (XIII.) has not called forth any work above the average, and the medal should, we think, have been withheld. In Class XIV. no award has been made, although it is devoted to animals which give such scope to the photographer. The most original work here is a picture of some caterpillars by Mr. J. W. Moore. In the Champion Class (XVI.) the first prize goes to Mr. M. H. Chubb, for his Nydia, and the second to Mr. T. Taylor, for his view on the Cole. Mr. Chubb also takes a medal in Class XVII., which is devoted to pictures of all sorts and sizes. Other classes there are devoted to "Bromide Prints," Warwickshire doorways, Warwickshire peasantry, architectural details, church windows, and characteristic village scenes But as we have before pointed out, these should have been combined and not separated.

The Apparatus section of the exhibition is not so strong a one as Birmingham could show, many of the leading manufacturers being absent. One or two novelties we noticed to which we hope to call attention in our next issue.

The judges were Messrs. Paul Lange, B. Wyles, Geo. Bankart, Chas. Hussey, H. S. Fry, H. P. Robinson, T. C. Hepworth, Richard Keene, F. Sutcliffe, H. Stevens, Gambier Bolton, and Andrew Pringle.

* * *

THE FORFARSHIRE EXHIBITION.

THIS was duly opened to the public on Thursday last by Mrs. Lindsay Carnegie, in the presence of a numerous and influential audience. Upon the whole the exhibition was decidedly good, the Champion, Portrait, Photo-Mechanical, and Ladies' Classes perhaps being the best. A number of noted exhibitors competed, as will be seen by the award list below.

The judges were Messrs. Adam Diston, of Leven; Marshall Wane, of Edinburgh; and Walter D. Welford, of London, and their awards were as follows:—

Forfarshire Amateurs.

Silver Medal ...	Peter Feathers ...	Dundee.
Bronze " ...	G. Mackie ...	Brechin.

Landscape.—Amateur.

Silver Medal ...	T. M. Brownrigg ...	Guildford.
Bronze " ...	A. G. Bishop.	

Genre and Portrait.—Amateur.

Silver Medal ...	Withheld.	
Bronze " ...	John E. Dumont ...	U.S.A.

Professional Portraiture.

Silver Medal ...	W. J. Byrne	Richmond.
Bronze " ...	J. H. Hogg	Kendal.

Genre.—Professional.

Silver Medal ...	Robt Terras.	Markinch.
Bronze " ...	W. J. Anckorn ...	Arbroath.

Enlargements.—Open.

Silver Medal ...	Alexander Bros. ...	Glasgow.
Bronze " ...	W. J. Anckorn ...	Arbroath.

Landscape.—Professional.

Silver Medal ...	Robt. Terras	Markinch.
Bronze " ...	J. H. Hogg	Kendal.

Ladies' Class.

Silver Medal ...	Mrs. Bennetto	Italy.
Bronze " ...	Mrs. Amy Warneuke	
Hon. Mention ...	Miss Margaret Watson	

Lantern Slides.

Silver Medal ...	T. M. Brownrigg ...	Guildford.
Bronze " ...	Edgar G. Lee	Cullercoats.
Hon. Mention ...	W. Taverner	London.
	W. C. Beetham ...	Cheltenhm.

Champion Class.

Gold Medal ...	W. M. Warneuke ...	Glasgow.
Silver " ...	J. A. Dumont	U.S.A.
Bronze " ...	Robt. Terras	Markinch.

Special Awards.

Gold Medal ...	Withheld.
Silver " ...	W. J. Byrne, for "Carpenter's Alphabet."
Bronze " ...	Miss Hall, for Floral Studies.

The Classes and Competitors.

Class 1.—Amateurs of Forfarshire. The work shown here was of considerable merit, and proves that the county has amateurs who can do excellent work. The exhibit was not only good, but many workers were represented. Peter Feathers, in a frame (No. 27) of eleven excellent views, gained the silver medal; the old mill, the marine bit, and the quiet stream study being most excellent. The small winter studies of G. Mackie repaid close inspection, and they deserved second award.

Class 2.—Landscape pictures open to all amateurs. T. M. Brownrigg, of Guildford, Surrey, stood out pre-eminent in his quiet studies of the varying moods of Nature. They were all in a low tone, and gave a peaceful, restful impression to the mind. A. H. Bishop's "Lochwood Tower Road" was a charming rendering of a quiet country lane. Amongst the other pictures which merited attention were the first-class architectural studies by W. Rawling, some excellent studies by Wm. B. Post, a noted American exhibitor, and a frame of five half-plate prints by John A. Courts.

Class 3 (Amateur Portrait and Genre Studies) was, perhaps, not quite equal to the others. The work, however, of John E. Dumont showed great care in selection and execution. Lieutenant Bohmer had some fine figure studies, and the portrait work by Alfred G. Laird and Miss Ellerbeck was certainly good.

Class 4.—This class contained some magnificent specimens of portraiture by some of the best British workers, in which W. Crooke and Marshall Wane, of Edinburgh; W. J. Byrne, of Richmond, Surrey; J. R. Hogg, of Kendal; and Robert Terras, of Markinch, were worthy examples. "The Carpenter's Alphabet," by W. J. Byrne, though an ambitious effort, was worth studying for the careful pose and arrangement of figures throughout. The fine, large direct head studies of W. Crooke certainly attracted attention. For fineness of detail and delicacy of tone and gradation, J. R. Hogg's work was most commendable. Above all the others the children's studies of W. J. Byrne attracted the public.

Class 5.—This class, which consisted of genre and figure compositions by professionals, contained many capital examples of life and character scenes throughout. Most of them were by the General Hon. Secretary, W. J. Anckorn, of Arbroath, who has been a frequent competitor at photographic exhibitions for some years now, and withal a successful one. Robert Terras, of Markinch, also showed to advantage with similar subjects, and carried off the premier award with No. 178.

Class 6.—The Silver Medal picture, No. 409, was a bold and vigorous head study; the yachts of Sweet and Kinloch were very good, and the whole class was a fairly average one, as photographic exhibitions go.

Class 7.—Professional landscape was, rather to our surprise too, comparatively a small one. The Silver Medal fell to three prints by Robert Terras (No. 226), done upon the rough paper which is now coming so much into vogue. T. Zacharias showed some good German water scenes, and the landscapes by W. M. Warneuke were also good. For a charming little pure landscape study, a good example was No. 228, by J. H. Hogg, of "Coniston Lake."

The Photo-Mechanical section was a capital one, and proved quite an eye-opener as to the present advanced state of mechanically-produced prints.

Class 8.—We understood that the judges were agreeably surprised at the quality of the work, although the number of exhibits was not large. The portrait studies by Mrs. Bennetto were excellent for amateur work. The bronze medal print, No. 249, is a charming composition, in fact a picture made out of a very quiet little country lane. The foreign scenes of Margaret Watson and the landscapes of Miss Hall were also very good. The floral studies by the same lady have been awarded a special bronze medal, and deservedly too.

Class 10.—In the other classes all pictures that have previously received a medal were debarred. The finest picture was the fireside scene of W. Crooke, but this was disqualified by the infraction of a regulation. The excellent character studies of John A. Dumont, an American exhibitor, were magnificent samples of expression. The various portraits and figure studies of W. Crooke and W. M. Warneuke attracted considerable attention.

Apparatus Section.

Mr. Alex. H. Simpson, the local agent, made a good display of specialities in the direction of apparatus and oddments. The huge model of the Lothian Universal Plummet attracted attention, as also the various samples of the optical lanterns. There was a good display of Baird's successful Todd-Forret Flash Lamp, which was practically tried by the judges, and awarded a bronze medal. Upon Mr. Simpson's stall was also found a handsome case of lenses by Ross & Co., of London. Baird's Rapid Solution Jars and specially light dark slides were also well displayed.

Lectures were delivered by Messrs. Walter D. Welford, V. C. Baird, and J. D. Ross, in each case being illustrated by lantern slides.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

8,420. James Watney Wilson, 55, Chancery Lane, London, "Improvements in Photographic Cameras."—*26th April*, 1893.

8,541. E. Barnard, Garsdon Park, Malmesbury, "An Improved Apparatus for Changing in Daylight Photographic Plates from a light-tight box to the dark slide of the Camera and *vice versa*."—*28th April*, 1893.

8,624. William Morrison Simpson, 58, Elphinstone Road, Hastings, "An Improved Washing Apparatus for Photographic Prints."—*29th April*, 1893.

Specification Published.

7,567. *April 21st*, 1892.—"Photographic Materials." T. Christie, 25, Lime Street, London.

Relates to transparent tissue described in Patents Nos. 12,230 of 1890 and 13,917 of 1888, and has for its object to render same suitable in photography—namely, for the manufacture of changing or developing bags, chambers, covers, window films, &c. A solution of gelatine substance is first made, and a ruby colouring matter of a nature which does not allow the actinic rays of light to pass through is incorporated therewith. Chemical agents are also added to render the glutinous substance insoluble, such as salts of chromium. Glycerine may be combined with the glutinous matter for the purpose of imparting flexible properties to the same. The gelatinous matter is employed as a film upon glass, or suitable paper, silk tissues, &c., are treated with the same as described in the above-mentioned patents.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

CORRESPONDENCE.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

Sir,—My duties as Hon. Secretary and Treasurer having terminated, will you kindly allow me to inform your readers that all communications intended for the London and Provincial Photographic Association must be forwarded to Mr T. E. Freshwater, 3, Fleet Street, E.C., who is acting as Hon. Sec. *pro tem.*

95, Blenheim Crescent, W. R. R. Drage.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

May 4th.—Mr. A. Cowan in the Chair.

The resignation of Mr. R. P. Drage was announced; also that Mr. T. A. Freshwater had consented to act as hon. secretary until the annual meeting.

Mr. E. H. Wall read a paper, which is to form one of the handbook series, on "Development." He said that he should have to make certain statements directly contravening propositions put forward by Messrs. Hurter and Driffield. It was popularly supposed that, by altering the constituents of the developer, an image could be produced in which variations of exposure would not be recognised, and this belief he held to be right. The effect produced by varying the development might be stain, fog, or something else, but it gave the photographer what he wanted. The general constituents of a developer were, first, the developer proper; then there was a restrainer, and there might be an accelerator. With ferrous oxalate, as with other developers, a soluble bromide was the usual restrainer, and it might be added in the proportion of two drops of a ten per cent. solution to each ounce. Other restrainers were ferric oxalate—such as existed in a developer that had been used—and various organic salts. With this developer, hyposulphite of soda, used in the proportion of one-eighth of a grain to the ounce, had been recommended as an accelerator; but he did not think that the claim which had been made for this addition, that it really had the effect of longer exposure, was one that would stand. With pyro developer the restrainer might be either a bromide, a chloride, or an iodide, or such an organic salt as a citrate. Pyro development had long held its own, and, he thought, would continue to do so. Variations could be made with it, and, in spite of Messrs. Hurter and Driffield's statements, he held that density ratios could be altered. The addition of a sulphite to the pyro developer had for its purpose the preservation from oxidation of the solution. He thought, also, that acid sulphites had an influence in keeping the shadows clear, and altering the character of the image. The great distinction between ammonia and the carbonates was that the former had a tendency to fog, and the latter to hardness. A developer which had been recommended as a standard contained pyro, 2¼ grs.; liq. ammonia (·880), ½ gr.; and ammonia bromide, 2¼ grs. to the ounce. For over-exposure, increase the pyro and bromide, and use less alkali; for under-exposure, or subjects liable to come too dense, the pyro might be reduced to as little as a quarter of a grain to the ounce. Density might afterwards be obtained by the addition of alkaline citrates and a full dose, or double dose, of pyro. Hydroquinone was the developer which gave, in a sensitometer trial, the largest number of unprintable numbers. Caustic alkali might be used with hydroquinone, but not in any quantity with eikonogen, or frilling would set in. Another set of developers included such as paramidophenol, of which rodinal was a very convenient form. Mr. Sterry had stated at the Camera Club gathering that, with paramidophenol, sometimes the shadows would appear before the high lights. This he thought was a mistake. He had worked for some time with amidol, and thought that it promised to oust paramidophenol from the field. One grain of amidol and 10 of sulphite to 100 of water was a useful formula; but, for some plates, it was desirable to use bromide even up to 2 grains per ounce. To obtain density, citric acid or a citrate might be added, and, if that did not suffice, ferrocyanide of potassium up to 10 grains to the ounce. If the amidol were kept in solution even for a short time, it was impossible to obtain density. With amidol, metol, and eikonogen, the whole image appeared at once; whilst, with pyro and hydroquinone, there was a gradual growth, beginning with the high lights. Ferrous oxalate might be classed with either of these two divisions, according to whether hypo was added or not.

The **CHAIRMAN** said that Hurter and Driffield had defined what they meant, and he had never been able to upset their theory, that density ratios could not be altered.

Mr. **CHILD BAYLEY** said that Mr. Wall had stated that the only developer which stained was pyro. He thought that that was due to the fact that with other developers large quantities of sulphite were directed to be used.

Mr. W. E. **DEBENHAM** thought that the pyro developer, given as a standard, was too strong in pyro and bromide in proportion to the ammonia. As to a standard time for development, he thought that was wrong. Some plates required longer to develop than others, and would stand longer development without fogging. Each plate ought to have the time best suited to it. It had been stated on behalf of amidol that it would bring out an image with less exposure than pyro. He could not find the slightest difference, and would like to ask if Mr. Wall had done so.

Mr. **WALL** had not found the difference referred to.

Mr. J. S. **TEAPE** agreed with Mr. Debenham that different plates ought not to be tested with one standard time for development.

Mr. **MACKIE** also thought that the developing formula (Mr. Bothamley's), which had been given as a standard, was too strong in pyro, and ought not to be considered as a standard. In a series of experiments made some time since he had found that altering proportions of pyro and altering bromide had precisely the same effect as far as density and correcting over-exposure were concerned. He would like to know the action of ferrocyanide in the developer.

Mr. **WALL**, in replying, said that amidol brought up the image more quickly than pyro, but did not lessen the exposure necessary. From the picture-maker's point of view the ability to alter the character of the picture by altering the constituents of the developer was very important. The action of ferrocyanide of potassium was very similar to that of some other alkaline salts.

WEST LONDON PHOTOGRAPHIC SOCIETY.

OUTDOOR MEETINGS, 1893:—May 13, Richmond Park, meet at Richmond Hill Gate, 3.30, Messrs. Hodges and Adams, leaders; May 27, Sudbury, meet at Willesden, 3.6, Messrs. Stein and Varden, leaders; June 10, Greenwich, meet at Charing Cross, S.E.R., 2.20, Messrs. Whiting and Horton, leaders; June 24, Wimbledon, meet at Southfields Station, 3.33, Messrs. Brown and Harvey, leaders; July 8, Kew Gardens, meet at Main Gates, 3.30, Messrs. Rogers and Dixon, leaders (members must obtain their own admission tickets); July 22, Greenford, meet at Ealing Station (District), 3.33, Messrs. Hodges and Whitear, leaders; August 5, Stanmore, meet at Willesden, 3.25, Messrs. Kellow and Winter, leaders: August 19, Uxbridge, meet at Paddington, 2.35, Messrs. E. S. Miller and Wilson, leaders; September 2, Pinner, meet at Baker Street, 2.59, Messrs. Stein and Rogers, leaders; September 16, Wembley and Neasden, meet at Willesden, 3.6, Messrs. Scanlan and Varden, leaders; September 30, Brentford, meet at Kew Bridge, 3.0, Messrs. Winter and Adam, leaders.

HACKNEY PHOTOGRAPHIC SOCIETY.

THE annual meeting was held on Tuesday. A very successful season had to be recorded, the membership (although several removals had taken place) keeping up to 115. The **TREASURER** reported a fair balance in hand, and stated the weekly meetings had done much to improve attendances.

The election of officers resulted as follows:—President, F. Houghton; Hon. Sec., W. F. Fenton-Jones, 12, King Edward Road, N.E.; Hon. Asst. Sec., A. Dean; Hon. Treas., J. O. Grant; Council, W. L. Barker, G. J. Avens, F. W. Gosling, G. Hankins, R. Beckett, W. A. Hensler, Dr. Roland Smith, and E. Puttock.

The Society meets weekly, on Tuesdays, at 206, Mare Street, Hackney.

At the close of the business, the prize slides of the *Amateur Photographer* were shown, augmented by slides of Messrs, T. H. Blake and S. J. Beckett.

Excursions for the Month:—May 13th, Wanstead Park. Train for Leytonstone (G.E.R.) from Liverpool Street, at 2.8. Permission to take photographs is obtainable from Sir J. Monckton, Town Clerk, Guildhall, E.C.—May 27th, Hampton Court. Train leaves Waterloo at 2.10. Apply to H. W. Primrose for permission, H.M. Office of Works, Whitehall, S.W.—Derby Day, Loughton, from Liverpool Street, at 2.10 Tea at George Hotel, George Lane, Woodford.—Whit Monday, excursion to be made up on May 9th, at the ordinary meeting. Members are requested to mention likely places for excursions to the Hon. Sec.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, May 1st, at Hanover Hall, Hanover Park, Peckham.—The President, Mr. F. W. EDWARDS, in the Chair.

AT the close of the ordinary routine business, Mr. S. HERBERT FRY delivered an address on "Multiple coated Plates," during the course of which he gave a minute description of the peculiarities of the Sandell plate, and the treatment of it. For development he recommended Messrs. Thomas & Co.'s "Cyclol" developer, compounded as follows :—

Hydroquinone	30 grains.
Eikonogen	100 ,,
Rodinal	9 drams.
Sulphite of soda	2½ ounces
Carbonate of potash	2½ ,,
Water	20 ,,

Use 1 part to 7 parts of water in the summer, and in the winter time 1 part to 3 parts of water.

The fixing-bath should be as strong as 8 ounces of hypo to a pint of water. A longer time should be allowed for the fixing and washing of the plates, owing to the thickness of the coating.

Mr. Fry, in conclusion, claimed the following advantages for the Sandell plate :—

1. Special merits for hand-camera work.
2. Peculiar fitness for interior work.
3. A practical cure for halation.
4. A better atmospheric effect and a longer range of gradation.
5. Exposure is practically unimportant.

Examples of work were passed round and examined. A question was asked, "What is the best background for photographing flowers for lantern slides?" It was answered, a black velvet, brown paper, or a dark-coloured, plain background. Two new members were elected and five nominations were read. Attendance, 52.

PUTNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, held at the Society's Rooms, Charlwood Road.—Dr. SHEPPARD in the Chair.

MR. CHARLES GAMBLE read a paper on "Lighting of Objects to be Photographed," in which he clearly pointed out the importance of studying the effects produced under varying conditions of light. About 100 slides, prepared by himself to illustrate the lecture, were passed through the lantern. Mr. Gamble explained the qualities or defects of each, and the members were thus able to see what effects they should endeavour to secure and what faults they should avoid.

A hearty vote of thanks to Mr. Gamble for his interesting paper, and for the thoroughly practical way in which he had placed the subject before the meeting, concluded the proceedings. This was the last ordinary meeting of the winter session.

The annual general meeting of the Society, for the election of Council and other business, was held on the 4th inst., Dr. SHEPPARD in the Chair. All the members of the retiring Council were re-elected, the accounts (which showed a balance in hand) were passed, and some slight alterations were made to the rules.

As in previous years, a series of outings will be held on Saturdays during the summer months, a feature being that on each occasion one or more members will act as leaders, having previously gone over the ground and made the necessary arrangements.

In addition to the opportunity of photographing picturesque scenery, it is intended to give instruction in field work to the novices, and to arrange a series of experiments with, and comparative tests of, apparatus and materials.

The first outing will take place on Saturday, the 13th inst., when the joint hon. secretaries, Mr. Gorin and Mr Zachariasen, will take the members along parts of the Basingstoke Canal and the Wey Navigation, starting from Byfleet.

BRIXTON AND CLAPHAM CAMERA CLUB.

AN ordinary meeting of the Club was held on Tuesday, May 2nd, at 8 p.m.

In the unavoidable absence of Mr. Horsley Hinton, who had been expected to give a lecture on this occasion, the members occupied the time by discussing photographic subjects. One new member was elected and three other gentlemen proposed for membership.

The next meeting of the Club will be held on May 16th, on which occasion Mr. W. THOMAS will read a paper on "A Photographic Picture and its Production." As the subject is one which every photographer should thoroughly understand, the attendance of every member, and also of any gentlemen interested in photography, is specially requested. Mr. Thomas's paper will be fully illustrated.

Meeting, June 6th.—Mr. S. H. FRY, "The Sandell Plate."

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Ordinary Meeting of the Society, held May 2nd.—Mr. W. JONES in the Chair.

MR. FRY gave a lecture on the "Uses and Advantages of the Sandell Plate." Mr. Fry described the advantages claimed for multiple films.

These were well exemplified by an extremely fine series of pictures produced by Mr. Sandell, the inventor of the plate. As to manipulation, briefly one may say give a long exposure and develop tentatively, hydroquinone and eikonogen used together being one of the most suitable developers.

The CHAIRMAN said he had used and liked the plates very much ; the one thing he did not like was the price.

Mr. SIMKINS said he thought all that had been done by these plates could be done with any ordinary good plate properly backed. Mr. Simkins' method of working is to largely over-expose, development being tentative and stopped by citrate of ammonium when detail is out, and then redeveloped to full density.

Mr. MIDDLETON said he thought the Sandell plates did not always prevent halation, and challenged Mr. Fry to expose a plate on the interior of St. Martin's Church, Birmingham, a very difficult subject.

Mr. JAQUES said he considered the results shown very beautiful, so soft and such transparency in the shadows ; he should certainly try the plates.

Other members having spoken, the Chairman expressed the thanks of the meeting to Messrs. Thomas and to Mr. Fry.

Forthcoming arrangements.—Tuesday, May 16th.—Social evening.

Saturday, May 20th.—Half-day excursion to Alcester.

LIBRARY

Leader: Jas. Simkins. The chief objects of interest are:—The Church, with a fine 16th century monument, and an ancient tryptich, both requiring isochromatic plates; old houses in the town, street scenes, scenes on the River Arrow. Alcester Mill, Arrow Church and Village (about half a mile, from Alcester), &c., &c. Train leaves New Street 1.18; return train, 6 10 p.m. If excursion trains are running on this date, advantage may be taken of them.

Tuesday, May 23rd.—A discussion will be opened by Messrs. J. T. Mousley and E. H. Jaques upon the best styles and methods of mounting photographic prints. It is hoped that a large number of members will take part in the discussion.

Tuesday, May 30th.—A short discussion on "Christian Architecture in England," by E. Hendren. Illustrations of the various styles—viz, Norman, 12th century; Early English, 13th century; Decorated, 14th, and part of 15th century, will be sketched by Mr. Hendren upon the blackboard. The object of this paper is to assist members who are engaged on the Warwickshire Photographic Survey in distinguishing one style from another. This will undoubtedly add much to the interest of the work, and the lecturer's well known knowledge of his subject should make it of great use to the members.

All the above meetings will be held in the Society's Rooms, Colonnade Hotel, at 7.30 p.m.

LEWES PHOTOGRAPHIC SOCIETY.

THE usual monthly meeting of the above was held on Tuesday, the 2nd inst., when Mr. G. J. WIGHTMAN gave an interesting demonstration of the cold bath platinotype process, developing a number of prints, and showing how development could be controlled with glycerine and the results varied. The prints were very satisfactory and much appreciated.

A number of sample packets of plates sent by the Imperial Dry Plate Company were handed round to the members for trial.

SHEFFIELD PHOTOGRAPHIC SOCIETY.

THE ordinary monthly meeting of the above Society was held at the Masonic Hall, Tuesday evening, May 2nd, Mr. BRADLEY NOWILL in the chair.

After the election of two new members, the arrangements were completed for the excursion to York and Knaresboro'.

The next business was the print exchange, many members taking part; after which Mr. T. G. HIBBERT introduced four photographs taken in America by the Daguerreotype process, which are still in a good state of preservation.

BATH PHOTOGRAPHIC SOCIETY.

AN ordinary meeting was held at the Royal Literary and Scientific Institution, on Wednesday, the 26th ult., Mr. W. PUMPHREY presiding.

Some improvements in lens fittings, sent by Messrs. Taylor, Taylor, & Hobson, of Leicester, were explained by the SECRETARY, who also exhibited, on behalf of Messrs. Swift & Son, London, some special hand camera lenses, made of the new optical glass, and possessing a remarkable degree of brilliancy and defining power.

Colonel Sealy and Mr. Stair A. Stewart, M.I.C.E., were elected members of the Society.

The remainder of the evening was devoted to an exhibition of lantern transparencies, contributed by the Devon and Cornwall Camera Club. The views represent scenes about Plymouth and the adjacent district, where excursions will be made by the Photographic Convention—Plymouth meeting—July, this year.

The CHAIRMAN drew attention to the prospectus issued by the Photographic Survey Committee, and he further stated that there would be a public meeting under the auspices of the Society shortly, to demonstrate the uses of multiple coated films.

LEEDS PHOTOGRAPHIC SOCIETY.

A MEETING was held on Thursday evening, the 4th inst., Mr. J. H. WALKER, President, in the Chair.

Dr. JACOB gave a very interesting and instructive lecture, with practical demonstrations, on "Tone and Colour in Lantern Slides." A hearty vote of thanks was given to him at the close.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

TOOMAX.—There is no common solvent for the two substances and therefore they cannot be mingled. Your only course will be to coat the surface with each in turn. We are doubtful, however, whether the experiment you refer to will succeed.

J. P.—An ounce of practice is worth a pound of theory; wherefore we would advise you to place yourself under the hands of an expert rather than read so many books!

CHINA.—The plates mentioned are of very good quality, but they will not bear ammonia. Try a soda developer and you will succeed.

ITINERANT.—The idea is a good one, but unfortunately is not new. A book was published about thirty years ago, by Thomson (the translator of Tissandier's "History of Photography"), which is illustrated by silver prints of the kind referred to. A copy of this is in the British Museum Library.

M. A. P.—The method is applicable to both processes, as you will find out by trial. It is not generally known that it will work with the latter.

CHISHOLME.—Replace two-thirds of the water by methylated spirit. Failure is probably due to the absorption of too much water by the gelatine, and this expedient should cure the evil.

B. M.—We have no room for the matter this week, but will try to find space for it later on.

(Some answers are unavoidably held over until next week.)

HOW TO PRINT A PHOTOGRAPH ON MARBLE.—Mr. Villion publishes the following process:—Coat an unpolished plate of marble with the following solution: Benzine 500 parts, spirits of turpentine 500 parts, asphaltum 50 parts, pure wax 5 parts. When dry, expose under a negative, in sunshine, for about twenty minutes. Develop with spirits of turpentine or benzine, and wash in plenty of water. Now cover the plate where it is intended to be left white with an alcoholic solution of shellac, and immerse the same in any dye which is soluble in water. After a while, when enough of the colouring matter has entered the pores of the stone, it is taken out and polished. The effect is said to be very good.—*Photographisches Archiv.*

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1811. MAY 19, 1893.

NOTES.

SOME months ago there was a little flutter of excitement in consequence of the Examiner of Patents at New York deciding in favour of the claim of the Rev. Hannibal Goodwin to be the inventor of the flexible film used by the Eastman Company. We are glad to learn that the Commissioner of Patents has now reversed this decision, and that the Eastman Company are not likely to be troubled any more in the matter. Even if their opponent had won the day, his victory would have been of little use to him, for the Kodak people hold many other patents which prevent the manufacture of these particular films by others.

MESSRS. EYRE & SPOTTISWOODE, who, it will be remembered, have taken over the business of the Woodburytype Company, have for some time been issuing a very fine collection of carbon reproductions of the works of the old masters. These average about five inches in width, and are termed—somewhat irreverently for such beautiful things—"Scraps." The same firm are now busily engaged in photographing the pictures at the National Gallery, and their name is sufficient guarantee that the reproductions will be good ones.

AT the fine photographic studio which for some time has been established on the roof of the College of Surgeons in Lincoln's Inn Fields, a very good method is adopted of photographing specimens bottled in spirits. Such bottles are generally round, and the form of the specimen within is always more or less distorted by refraction. To neutralise this, each specimen when photographed is immersed in a tank having plate-glass sides, and filled with water. The distortion thereupon disappears, and the photographer's task is rendered easier.

CURIOUS ideas find reception and record at the Patent Office. A recent one proposes to emulate Daniel's handwriting on the wall in the following manner. A piece of opaque paper mounted as a lantern slide is written upon with an ink composed of a strong solution of saltpetre. When dry the paper is put in the lantern, and fire is applied to the writing, which thereupon begins to smoulder after the manner of touch paper, into which the saltpetre has converted it. The hint is, of course, borrowed from certain advertisements, which were printed in the same way, and were common about a year ago. That such an idea should be patentable is not the least curious thing about it.

IT would seem that every photographer has been endeavouring to send to Chicago the largest picture ever made. Australia is reported to have achieved one fourteen feet in length, which feat apparently beats the record. The next thing which we may hear of is that some enterprising photographer has whitewashed the side of a house with silver chloride, has cast the image from a negative upon it by means of a lantern, and has developed and fixed the picture by the aid of a couple of fire-engines.

AT Messrs. Swift's works in the Tottenham Court Road we saw the other day an electric motor at work which was accomplishing much at little cost. It is geared to a shaping machine, which, at the time of our visit, was planing a set of brass microscope stages. The work was being done automatically, and required no attention from the workmen from start to finish. It is quite evident that, for instrument makers, the electro-motor is far more convenient and cheaper than any other form of power, provided, of course, that current is obtainable cheaply, as it is in the parish of St. Pancras.

Messrs. Swift also showed us a very beautiful microscope having various improvements, which had been suggested by Sir David Salomans. It is intended more especially for petrological purposes, and is based on Dick's original model. The instrument was shown at the recent *soirée* of the Royal Society.

Japan is a favourite hunting-ground both for the painter and photographer. No country lends itself better to the camera, and evidence of this is seen in an interesting article by Dr. W. Delano Eastlake, on "Japanese Home Life," in the *New York Popular Science Monthly* for May. The article is copiously illustrated by photographs from life, and these photographs enable one to realise the domestic aspect of the Japanese in a way impossible by any other method.

The demand for the photographs of the Duke of York and the Princess May commenced directly the betrothal was announced. Under the circumstances the photograph of the young lady was at once procurable, for most of the dealers had a stock in hand. Usually they are not so fortunate. But the photographs of the Royal couple taken singly will not long suffice, and the photographer who is commissioned to photograph them together will be envied by his less fortunate brethren, as the orders are sure to be enormous.

It is curious how every celebrity has to satisfy the popular desire to gaze upon his or her features. As a rule Royalty is not averse to this. There are, however, exceptions. The Empress of Austria, for instance, for a long time refused to sit for her photograph, until one day what was described as her portrait appeared in all the shops, and was so vile a caricature that she came to the conclusion she had better give the public the genuine article. And this is how she came to be photographed.

The amateur's "snap-shot" camera never fails to be in evidence nowadays at popular out-door functions. When the "Two Thousand Guineas" race was run, a well-known lady of fashion was seen amusing herself with taking a photograph of the horses as they flashed past. More than one camera also was seen being slily employed at the windows overlooking the Guildhall Yard on the occasion of the Unionist demonstration last week.

History, as recorded by the journalistic artist, is sometimes a very mixed affair. Take, for instance, the representation of the opening of the Imperial Institute by the Queen, as depicted by the *St. James's* and *Westminster Budgets*. In one, the artist saw the table on which the model of the building stood covered with a table-cloth; in the other, it is perfectly bare. The Queen wore her widow's weeds according to the eyes of one gentleman; she wore an up-to-date bonnet according to the second. The ladies who stand round are differently attired in the two pictures; the floral decorations, which are ferns in one, become palms in the other; while the models of the building in front of Her Majesty are as unlike as they can possibly be. Of course the explanation is the drawings were made before the ceremony, so as to get them done in time for the publication of the paper. But the public do not know this, and the result is rather confusing.

A case heard last week at the City of London Court is of interest to photographers who employ canvassers on commission to obtain orders for portrait clubs. In this case, which had nothing to do with portrait clubs, but was an action to recover a sum of money for photographs supplied, the plaintiffs failed because they sold the goods through a traveller, who was simply on commission, and who had left their service, having defrauded them. Where a man is paid only by commission he cannot be charged with fraud; any irregularity is simply a question of account. To be on the safe side, photographers should pay their canvassers a nominal salary as well as a commission.

Evidently they know nothing about the poisonous effect of cyanide of potassium in Johannesburg. This salt is very largely used in connection with the recovery of gold from refractory ores, and the utmost carelessness seems to be shown in handling it. A South African paper says, "It may be news to many of our readers to learn that the cause of the eye complaint which has made its appearance here may be found in the *débris* cyanide tailings which are at present accumulating close to town. The *débris* tailings are deposited on a spot surrounded by workmen's houses, and nearly every one of the occupiers has at some time or another been suffering from sore eyes." Photographers who have long banished cyanide from the dark room will not be surprised at this.

SIMPLE SLIDE CHANGER AND ECLIPSER.

BY GEO. M. HOPKINS.

WITH perhaps the single exception of the photographic camera, there is probably no instrument of which so many different grades can be found as of optical lanterns, ranging as they do from the poor toy article with a candle for a light, up to the magnificent optical lantern employing electricity as an illuminant, and costing hundreds and in some cases thousands of dollars.

The apparatus here described is not designed for use with either of these extremes, but is intended for a good single lantern used for projecting photographic slides.

One does not need to be an adept in lantern matters to know that half the effect is lost when the slides are passed through the field in successional order; and while the superb effect secured by two or more lanterns and dissolving apparatus cannot be produced by a single lantern, slides can be changed, without making the movements visible on the screen, by means of an eclipser, which will momentarily shut off the light while the slide is being moved.

Several varieties of apparatus for this purpose have been devised, most of them being complicated and expensive.

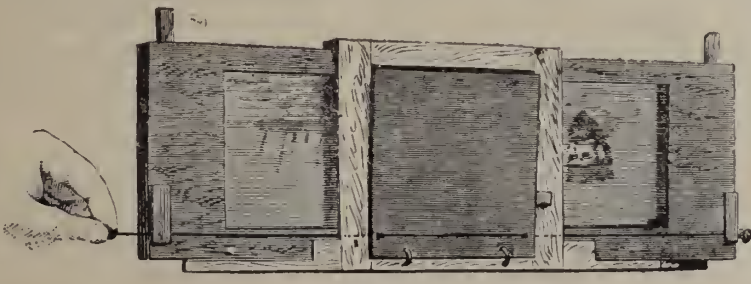


Fig. 1.

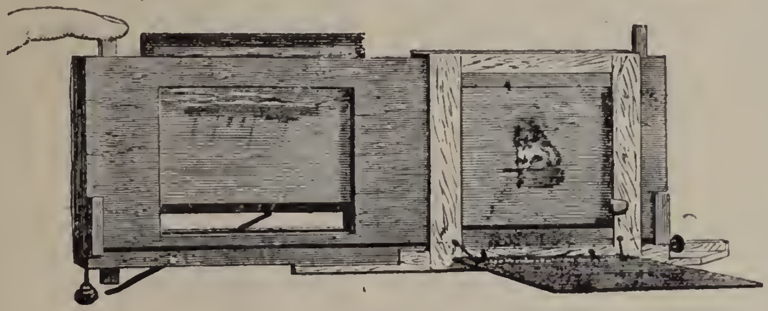


Fig. 2.

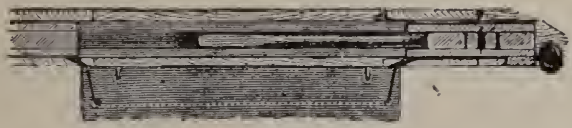


Fig. 3.

Slide Changer and Eclipser.

The engravings show a simple device which is effectual in accomplishing the desired result, and if entirely home-made the cost is very small indeed.

The principal part of the device consists of a wooden slide changer which may be purchased for a small sum from any dealer in optical lanterns, or it may be readily made by any one who is handy with tools.

The frame forming the fixed part is of the right size exteriorly to fit into the lantern. The opening through the frame is the same as that of a lantern slide mat. To this frame is fitted a slide having two pockets, one at either end, for receiving slides; the openings in the slide are larger than those of the fixed frame. In the bottom of each pocket is pivoted a brass lever, and in the outer end of each pocket is a space containing a vertical wooden rod, the lower end of which rests upon the shorter arm of the lever, while the upper end projects above the slide and forms a stop for limiting the motion of the slide. The pressure of the finger on the top of the wooden rod, as shown in Fig. 2, starts the slide from the pocket, so that it may readily be removed and replaced by another. Both pockets are seen in Fig. 1, which shows the operation of changing.

To the lower part of the front of the fixed frame is hinged a shutter made of vulcanised fibre, and through the shutter, about one-half inch above its lower edge near opposite ends, are made holes, and in the fixed frame opposite these holes are bored oblique holes for receiving the shutter-operating cord, which passes along the outer surface of the slide, through the holes in the frame and shutter and along the outer surface of the shutter between the holes. The ends of the cord pass through holes in the wooden strips secured to the sides of the slide at its ends, and each end of the cord is provided with a shoe button for a handle.

To the fixed frame, near one of the hinges of the shutter, is secured a thick piece of felt, which serves the double purpose of preventing the shutter from closing against the frame, so as to allow it to readily fall open when released, and of preventing noise.

In Fig. 2, a picture is being exhibited through the opening of the fixed frame, while slides are being changed in the other part of the apparatus. By drawing on the button at the right-hand end of the slide the first operation is the closing of the shutter, the second is the shifting of the view while the shutter is closed, the third operation is the falling of the shutter on the release of the cord, and the exposure of the second view. The cord used is the finest and strongest silk fish line, and, to insure smooth action, the cord is coated with black-lead.

To insure sufficient friction of the slide to prevent it from being moved until after the shutter is closed, a small steel spring is inserted between one of the upright bars of the fixed frame and the slide, as shown in Fig. 3.—*Scientific American.*

DETERMINATION OF PLATE SPEEDS.

A REPLY TO MR. WILLIAMS.

BY ALEXANDER COWAN.

HAVING had the opportunity of seeing Mr. Williams's paper in print, I venture the following remarks.

The first point that strikes me is where he says, "Such was the courage of my own opinions that I offered to submit everything to a disinterested jury;" and he then says, "To this challenge none of my dissentients have responded." In reply to this, I must remind him that a week previous to this the firm I have the honour to represent invited Mr. Williams and any committee of experts to practically test the matter at their works at Southgate, where every means is at hand to fully investigate the matter, but that, up to the present time, he has not availed himself of the offer.

Next, Mr. Williams says, "For reasons best known to themselves, certain manufacturers have thought fit to adopt the system introduced by Messrs. Hurter & Driffield." All I can say in reply to this is that, for ourselves, the reason we adopted it was that, after exhaustive trials, we were compelled to admit that it was practically far and away the best method we were able to find for estimating the speed of plates, and after some thousands of trials we are more than ever convinced that we were right in taking the matter up, and giving to the public the rapidity exactly as we found it of each batch of plates.

That we may have made some mistakes is quite possible, and I think if they had been very grievous ones we should certainly have heard about them soon enough; but I am sure that, if such has been the case, they have been quite accidental, and only incidental to the difficulty of at once perfectly mastering a rather delicate operation.

Mr. Williams, in the beginning of another paragraph, says: "Judging from the tone of the correspondence, one might imagine I had sat down with the deliberate intention of demolishing the Hurter & Driffield theory." Now, I think, if Mr. Williams will refer to the opening paragraph in this original paper, he must really see that he did give some occasion for this idea, for his words were, "So one event in photographic history has been the complete discrediting of the results shown by the Warnerke sensitometer, and we shall probably not have long to wait before we see a similar fiasco." But I am glad to see that he concludes the paragraph in the present paper with, "As a matter of fact, I had no such idea."

In connection with the paragraphs marked *a* and *b*, all I can say is this: such is my confidence in the Hurter & Driffield principle, that, if plates we mark do not answer to the relative speed number marked, it is we that have, as Mr. Williams puts it, "blundered," but that the "system is right." And members of this Society know how often, from time to time, I have shown results that fully bear out this contention, that the system is right.

With regard to the isochromatic portion of the paper, I submit that it would have been better not to have imported it into this discussion at all, as it is certainly a subject that requires separate attention.

Mr. Williams, in his concluding paragraph, quotes Mr. Andrew Pringle's article, alluding to Messrs. Hurter & Driffield as saying, "If they mean that, after all, we can materially control our practical results by controlling the developer and the following operations, then no more need he said; but, with their writings before us, we must say that it is by no means clear what they do mean in the matter." Now I really think that, if their original paper is carefully read, it will be found that they have been very careful to express what they really did mean.

They first began by asking the question, "What is a perfect negative?" and defining it as being, "mathematically, the true inverse of the original when the opacities of its gradations are proportional to the light reflected by those parts of the original which they represent."

Again, they say "their experiments conclusively show that the only control the photographer has over the development lies in securing a greater or less density of image, and that he has no control whatever over the gradations of the negative."

"That, with a well-balanced developer, there is a limit to density, which depends upon the action of light, and that, so far, the only control the photographer has lies in deciding whether he will reach that limit or not."

"That the length of time of development does not affect the ratio of densities among themselves, but increases every density by proportional amounts."

"That during the period of under-exposure the amount of silver reduced is directly proportional to the exposure."

"That during the period of correct representation the densities are proportional to the logarithms of the exposures."

So that a negative can only be theoretically perfect by "carefully adjusting the time to the intensity of the light, that the exposures may fall within that period of correct representation."

"That thickly coated plates give a very much greater latitude of exposure."

This I take to mean, in the matter of over-exposure.

"That thinly coated plates, on the other hand, need very accurately timed exposures."

"And lastly, that, when the inertia of the plate is known, it is possible to time the exposures in the camera so that the densities of the gradations are almost exactly proportional to the light intensities which produced them."

After these quotations, it can scarcely be fairly said that "it is by no means clear what they do mean in the matter."

I was very pleased to find, on referring to this leader in *Photography*, quoted above by Mr. Williams, that in the sentence immediately preceding it Mr. Andrew Pringle says: "We have, from the first, applauded and valued the investigations of Messrs. Hurter & Driffield, and it is possible that we are at one with them; in fact, of late we have begun to think we are at one."

There is only one other point that occurred in the discussion that I should like to make a remark upon, and that was Mr. Williams's remark that you could not be sure of getting the same speed number of a batch at different times. In answer to that, I can only say that I have reproduced the same number at various times from pieces of the same plate (seven times), extending over a period of eight months, with the greatest error of four per cent.

In conclusion, I should like to read you part of a letter I received on Saturday from a member of this Society, at whose request I had tested five different plates and films which were unknown to me.

He wrote : "No 5 is one of the sample plates you sent me some time ago. In this case the Hurter & Driffield number on the box tallies *exactly* with the one now given me—viz., 75. This goes far to prove that your method of testing is accurate, as, of course, you could not know that No. 5 was your own plate. When I get back into the civilised world, I must come to you to see how you do this testing, as it certainly seems the truest that I know of."—*London and Provincial Photographic Association.*

PLATINOTYPE PROCESSES.

BY ALFRED CLEMENTS.

WILLIS discovered the principle of the platinotype in 1873, but the application of this discovery to photography as a possible printing process was not thought of for the moment, and it took three years of almost incessant experimenting before the thing was, in his own language, "licked into shape," and started on its career.

There are records of two others who had previously thought of the possibilities of a platinum image—Herschell, the eminent scientist, and Hunt, a cotemporary. Their experiments were neither extensive nor successful, for one or both came to the conclusion that "platinotypes fade." Their reasoning was doubtless due to their having employed the platinic salt, and necessarily got a very poor image ; and, possibly, not in the metallic state.

At the beginning of his experiments with platinum, Willis discovered that the platinic salt did not, for his purpose, readily part with its metal, and that the platinous chloride, by reason of its having less chlorine in its composition, did so very readily ; and platinous chloride, in combination with a salt of potassium, which makes the double salt—potassic-chloro-platinite—is the form of platinum used throughout the entire series of platinotype methods.

The theory of the process, as we now understand it, is very simple indeed ; but, for the purpose of this demonstration, I need only give you a mere outline.

Paper is coated with an iron solution, known in chemistry as ferric oxalate, in which is dissolved a salt of platinum. After drying, this coated or sensitised paper is exposed to daylight, and the ferric salt becomes ferrous, the platinum salt up to this period having played no part. The ferrous image is then dissolved on an oxalate of potash solution, and just at the instant of dissolution the platinum metal separates from its salt, and the iron image is replaced by a deposit of platinum black, with the possibility of producing pictures such as you see hanging in this room at the present time.

The first platinotype process was short lived, on account of the many difficulties found in working it, and the uncertainty of the results. Moreover, the fact of silver being one of the constituent parts was always a pronounced weakness in the eyes of Willis. It was not a true platinotype process.

This process was replaced by a second one, which we know as the "lead process." In this method the platinum salt, or a part of it, is mixed with the developer ; but this was an expensive process, notwithstanding that the price of platinum was not then, about ten years ago, over half what it is at the present time. The process was fairly successful, but was only in use a short time, and made way for our present "hot process." The lead had been gotten rid of completely, and the platinum taken from the developer and added to the sensitiser, effecting a great saving in the consumption of platinum. This process is still in use, and in my mind it will take a long time before anything better will totally replace it, particularly for delicate portrait work.

Two years ago a "cold bath" process, that we had hoped would be the "cheapest, simplest, and best," was introduced, but we were disappointed. In this process the conditions are totally changed ; the paper is coated with iron only, and the platinum salt is added to the developer and deposited *on* the ferrous image. Atmospheric conditions play an important part in this process, causing the printing to be very uncertain, and all efforts to make it a contact printing process have been abandoned for the present. Its only use at this time is for the production of solar prints, such as artists use for crayon and pastel pictures, and for this purpose it is wonderfully successful and the best process we have ever had.

We have now reached the latest "cold bath" process, which seems destined to become very popular on account, principally, of the ease of development and the marvellous strength and purity of the blacks which it is possible to secure in the prints.

The developer itself can be so modified and manipulated as to suit almost every possible condition of negative.

I have with me several undeveloped prints from one negative, all printed as nearly alike as possible. With these I will attempt to show you what can be done with modified developers.

I may say that I get very little time to print—hardly enough to keep my hand in ; but, in the Platinotype Company's business the following rules are observed :—When printing from hard negatives the denser parts are printed up by masking, and the developer of normal or full strength. It frequently happens that such negatives have almost clear shadows, which on development give a very black deposit. Glycerine well rubbed into such deep shadows before development will prevent the choking up, and much of the detail saved that would without such treatment be lost. Negatives that are good —*i.e.*, those that have been exposed about right, and developed about right—require simply to be printed about right, and a normal developer "will do the rest."

Weak and flat negatives should be printed under tissue-paper, and developed on three parts water and one part developer; or, possibly, one-half glycerine and half developer and one-third water added. This treatment will give brighter prints from such negatives.

I will now show the development of cold bath prints, and afterwards develop some sepias on a hot developer.

Regarding the sepia process, I may say that until recently we have been unable to satisfactorily supply the demand for this paper, on account of the many difficulties of manufacturing it. These difficulties are fast being overcome, and I can safely say that we can now supply the paper and recommend its use.—*A Paper read before the Photographic Society of Philadelphia, at the Stated Meeting, March 8th,* 1893.

ROSE BENGALE AS A COLOUR SENSITISER.*

BY BARON HUEBL.

EOSINE silver gives the photographic plate only a certain degree of green sensitiveness. If, during exposure, the plate is protected from the effect of the blue rays in the print only those pigments appear bright which reflect green rays. Therefore green and yellow will be produced most brightly, while red, blue, and violet will appear dark. Therefore the decomposition is not quite right; green becomes too bright, red too dark, which is often very unpleasant in the reproduction of paintings.

Cyanine removes this failing, but the use of this sensitiser is attended with considerable difficulty.

I have, therefore, been endeavouring to find a colouring material which enables me to work as certainly as with eosine, but makes it possible to reproduce green and red correctly.

The material sought for must be sensitising for spectral yellow, therefore of a violet colour, and it should, if possible, belong to the halogen derivatives of the resorcinephtaleïn, because all the bodies of this group appear to be admirable sensitisers, easy to handle.

Dr. Eder had the kindness to place the desired colouring stuffs at my disposal for these experiments. Among them was a sort of rose bengale—a tetra-iodide dichlorinefluorescine, that almost entirely answers to the requirements. Though Dr. Eder and Dr. H. W. Vogel examined this material spectro-graphically, it was not employed in practice because, as I believe, it is not particularly adapted for gelatine plates.

Among the dyes of the eosine group rose bengale has the most decidedly blue hue. In alcohol it dissolves with a bluish red colour, and produces a violet silver salt. It sensitises collodion emulsion bath plates for yellow just as vigorously as yellowish eosine (tetra-bromine fluorescine) does for green. Rose bengale can, therefore, with great advantage be substituted for the eosine at present usual. Rose bengale produces yellow most brightly, green recedes and cinnabar is reproduced brightly. If one wishes to repress the green still more, one uses a cruet filled with (yellowish) eosine.

It is to be noticed further that it is not all commercial sorts of this dye that possess the required shade. Most colours marked "rose bengale" are not bluish enough, and therefore do not possess the colour decomposition described. As already remarked, all the resorcinephtaleïn dyes appear to be excellent sensitisers, and it would be of great importance for the further development of orthochromatic photography if it were possible to produce blue and green derivatives of this body.

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* From the *Photographische Correspondenz.*

THE PICTORIAL MODIFICATION OF PHOTOGRAPHIC PERSPECTIVE.

BY H. VAN DER WEYDE.

(Continued from page 284.)

IT has been advanced by some that this distortion can be overcome by a long focus lens at a long distance; but, although it does partially reduce it, the conditions are unnatural, and the portrait loses that subtle yet powerful effect which makes one see the sitter in one's very presence, what one might call a "speaking likeness" effect, to obtain which it is essential that the point of sight, whether optical or visual, should have been within a conversational distance. A long distance immediately suggests a theatrical effect, unsuitable for the portraiture of private people. Whether this view is correct, or would only occur to one having the knowledge and practice of these distances or points of sight, is perhaps open to discussion.

I will now give you a number of pictorial illustrations by magic-lantern, showing the difference between optical and visual truth, produced without changing the lens in front of the camera or the distance from the sitter. I will also show you the wonderful possibilities of this new power by a single humorous illustration, using a photograph of Mr. Marshall P. Wilder, that quaint American humorist, for my subject. I will also take a portrait by my light in an unconventional pose, and correct before you its inevitable distortion, and afterwards give you, as well as I can, a scientific explanation of my invention.

Before I had brought my invention to its present state of adaptability, I found I had to solve five problems.

1. To reduce locally the size of a head or hand, or other portion of a figure, and to do it symmetrically, so as not to change the character or symmetry of a head or the expression of a face; or, in the reduction of a hand or waist, to reduce, if desirable, the width only, and thus give a slender instead of diminutive effect.

2. Having solved this first problem—how to find a way to make a number of corrections in one negative at the same time, and with such simplicity and rapidity as not to call for special skill or training, or materially lengthen the time usually occupied in focussing during adjustment

3. To shorten or to lengthen a portion of the whole

negative right across without distorting the rest, such as lengthening the waist or skirt of a lady's dress, or, in the case of a landscape, to vertically enlarge the middle distance or horizon while reducing the depth of foreground and sky.

4. To obtain with each lens a variable degree of the modification of the dimensions of the parts corrected, so as to avoid the necessity of employing a great number of lenses to form a working set.

5. To find a readily-fashioned refracting medium, so as to enable one to make at will eccentric alterations, or even distortions, especially suitable for the purposes of caricature.

The first problem I solved by the interposition in front of the sensitive plate of a supplementary lens. Although I claim this interposition as part of my invention, the abrupt ending of the curve of an ordinary lens would not only throw a shadow or dark zone upon the negative, but the abruptly broken-off lines and shades on the outside of the zone would not tally with those on the inside. I, therefore (and this is the germ of my invention), continually vary the curvature of my lens until it reaches the plane—in other words, where the circumference of a plano-convex lens would otherwise stop, it flows or graduates into the reverse or concave curve or, if plano-concave, *vice versa*, and thus gradually merges by a wave-like line into the plane, with the result that the dark zone before referred to, consequent on the use of an ordinary lens, is replaced by a perfectly natural gradation, leaving no evidence whatever of the correction having been made.

The second problem I solve by providing a number of small lenses, each constructed on the above-described principle, and means of invisibly and adjustably supporting them in the pencil of rays.

In problem 3, to enlarge a portion only, such as the distance of a landscape, or to lengthen portions such as the skirt of a figure, I interpose a plate of glass, a portion only of which is of a cylindrical form, flowing gradually into a plane.

I solve the fourth by so arranging these lenses in the camera as to be readily moved backwards and forwards, hus varying the amount of the reduction of any part by change of focus. About a dozen corrector lenses will thus be all that are required to form a working set for ordinary portraiture.

To solve the last problem, I have found a readily-fashioned refracting medium; but as it requires considerable artistic skill to use it, and there are many difficulties to be overcome in its practical use, I am not in a position yet to bring it to your notice. It is embodied, however, in my patents.

It is easily seen that to use these corrector lenses requires no special training; only an eye for natural or visual proportions. That it is readily abused and dangerous in the hands of the stupid and ignorant only proves its wonderful pliability and adaptability in the hands of an artist, and instead of there being any drawbacks to its use, such as an increased time for exposure of the plate, on account of passing through more glass, the fact that the rays of the image are converged upon the parts rectified increases the brilliancy of the image, and it is found that the time of exposure is actually decreased.

This new power has many possibilities which you can readily imagine. I prefer at present to hide from you other evidences of its versatility in the domain of caricature, wishing only to advance the cause of that which is the more beautiful and true. In this I have been encouraged by Sir Frederick Leighton, than whom we have no greater exponent of the beautiful in form, and who, on a recent occasion, when visiting my studios to investigate this invention, expressed, not only his surprise, but his delight at the startling artistic gain, and the consequent visual veracity of the images I am enabled to produce.

Experts in optics are apt to have no sympathy or ear for the claims of art, and some will doubtless declare that optical truth is the only truth, and any correction a distortion. I was, therefore, doubly pleased, when I brought this invention before the Camera Club the other evening, to receive the congratulations and praise of its President, Captain Abney, the most advanced scientific expert in photography of the day. Unfortunately, he is prevented from being here this evening by an accident.

Hereafter, we shall be able to make pictures which will not only tell us the visual truth, the real truth to our minds and hearts, but also tell us something of the individuality of the photographer, thus raising one branch of photography another step towards becoming a fine art.

In conclusion, I would point to the examples I have shown you, and ask if they do not furnish an irrefutable proof of my assertion that optical truth is not visual truth.

Discussion.

The Chairman said that, in listening to Mr. Van der Weyde and seeing his results, and especially in seeing how he put his lenses on the plate of glass, one was forcibly reminded of Columbus and the egg, and wondered that no one had thought of it before; but all strokes of genius came out in that way, and the greatest simplicity often displayed the greatest genius. He was very glad that a landscape photograph had been included among the lantern slides; because he had no doubt that many present had seen Vicat Cole's "Royal Windsor," and no photographer could ever take Royal Windsor like that. He had looked at the place itself, and tried to imagine where one could get a view of it like that, and he was quite sure that the painter had etherealised it, and produced a picture which no camera could give. There had been, in fact, an alteration of the middle distance, and that the camera was powerless to do, unless with the aid of some such device as had been described, which he thought was destined to ally landscape photography more nearly to art than ever it had been before.

Mr. Traill Taylor said that they all knew Mr. Van der Weyde's great abilities, and must acknowledge the exceedingly successful way in which he had sophisticated these portraits. It was not a subject for a scientist, but for an artist; for an artist did not care whether a picture was truthful or not.

(*To be continued.*)

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, MAY 19, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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PHOTOGRAPHY IN CLOUDLAND.

IN spite of electricity, the magnesium flash lamp, and all other methods of artificial illumination, the photographer, more than any other man, is dependent upon sunlight for the greater part of his work. It behoves him, therefore, to take rather more interest in the subject of meteorology, and more particularly in that branch of it which comprises weather forecasting, than is customary with the average human being. The average man, indeed, instead of giving any serious attention to this important subject, is generally more inclined to scoff at it, and in some sort of vague way to connect those who devote their attention to it with any bad weather which may come along, as if, forsooth, they were responsible for the vagaries of our insular climate. But it is the Englishman's birthright to grumble, and it must be admitted that English weather, as a rule, gives him plenty of opportunity of venting his spleen. No rule, however, is without its exception, and the exception has lately come to us in the shape of a lovely cloudless spring—the beau-ideal of the photographic tourist for camera work—a spring far too fair from the agriculturist's point of view, but everything that the most exacting photographer could wish. The only camera-bearer who possibly has had cause to grumble is he who has wanted to make the clouds his study, for clouds there have been none for many weeks past.

It is to the clouds that the meteorologist looks for help in his endeavours to foretell the kind of weather which is coming to us. Hitherto he has depended entirely upon the readings of the barometer taken at one and the same time over a considerable tract of country, the various readings being telegraphed to headquarters. By comparing and tabulating these various readings, he is able to map out the atmosphere into regions of cyclones and anticyclones, the direction of the wind in the various localities helping him to indicate the arrival of such disturbances, or areas of peace, which will indicate more or less precisely the coming of storm and sunshine. And these foretellings are far better than ordinary prophecies, for about eighty per cent. of them come true. This good average will doubtless be made better when the Meteorological Society is able to furnish additional means for gaining knowledge of the subject; and, as we have just indicated, it is from the clouds that the information will probably be gained.

In the elaborate paper read by Mr. Clayden at the Camera Club Conference on "The Organisation of Meteorological Photography," which we summarised in a recent issue, the importance of obtaining the help of amateur workers in different parts of the country is fully set forth, and more particularly are such workers commended to devote their attention to photographing the clouds. And we were glad to see, at the Exhibition of the Birmingham Society last week, that a special class was devoted to cloud photography, for any action which will direct attention to this application of photography cannot fail to do good. The cloud pictures there shown were perhaps more of artistic than scientific value, but we may feel sure that were their authors induced to help in the work advocated by Mr. Clayden, they would soon enter into the spirit of the enterprise, and would sacrifice their artistic instincts in the pursuit of science.

What is wanted is a collection of groups of cloud photographs from which, in the first place, a reasonable system of cloud nomenclature can be drawn up. The old method of dividing the clouds into four divisions is not sufficient, and, hitherto, all attempts at a more scientific system have failed for want of that which modern photography can supply, if willing workers will only give their help. The thinner and more delicate cloud-forms, very often mere traces of vapour on a background as bright as themselves, are by no means easy to photograph, and almost impossible to secure in the camera without the aid of a black mirror, as advocated by Mr. Clayden; so that the accomplishment of such work will carry with it the satisfaction of having surmounted difficulties which have been found too great by others.

But, besides these delicate cirrus clouds, there are other forms which, if photographed, would prove of use for reference by the meteorologist. Any strange appearances in cloudland should be photographed, more especially the phenomena observable at the approach of a thunderstorm. Waterspouts, tornadoes, and dust-storms, happily, are not things of every-day occurrence, but they are not unknown even in this country, and should be seized by the photographer when they present themselves. We cannot too highly commend this work to those who have time and opportunity to join in it.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Dipping-bath Development — Writing on Negatives — Quantitative Precipitation of Gold with Hydroxylamine Hydrochlorate — Cold Varnishes.

Dipping-bath Development.

THE principle of dipping-bath development is found in the prolonged action of a very diluted developer contained in a dipping-bath which, being provided with grooves, allows the simultaneous development of a number of plates. This mode of development will be of special value in cases where plates of unknown exposure have to be treated; also in the case of orthochromatic plates, which frequently show a tendency to fog, the dipping-bath development is of advantage, it giving perfectly clear negatives, which show a very fine grain, and at the same time a range of gradation, even in the highest lights, which no other method gives. This method was first recommended by Dr. Meydenbauer, of Berlin, who used pyrogallic acid in this kind of development. The formula given by him for ordinary work was as follows :—

Sodium sulphite (10 per cent. sol.)...	100 parts
Potassium carbonate (20 per cent. sol.)	100 „
Water	10,000 „
Dry pyrogallic acid	2 „

For instantaneous exposures the following was recommended :—

Sodium sulphite (10 per cent. sol.) ...	100 parts.
Potassium carbonate (20 per cent. sol.)	100 „
Water	3,000 „
Dry pyrogallic acid........................	1·5 „

The same mode of development is now highly recommended by Baron Hübl, who, however, prefers the employment of glycin for this purpose. Glycin is a new developer introduced by J. Hauff, of Feuerbach; in comparison with metol, amidol, and other rapid developers, its action is comparatively slow, but it gives beautifully soft and harmonious negatives of an agreeable greyish tone; besides, it possesses the advantage of keeping clear for any time, even in the state of a concentrated solution. A concentrated developer of this kind is prepared as follows :—25 grammes of sodium sulphite are dissolved hot in 40 c.c. of water, after which 10 grammes of glycin are added. The mixture is heated up to the boiling point, and then 50 grammes of potassium carbonate are added gradually, in small portions. For use in dipping-bath development one part of this concentrated solution should be diluted with 50 parts of water. From time to time the plates should be lifted one by one, and examined by transmitted light. The time of development depends, of course, on the exposure which the plates have received; long-exposed plates will be ready for fixing after about one-half to one hour, whilst shortly-exposed ones will oftentimes require up to six hours. Baron Hübl mentions the following experiment made by Herr Pühler. Four plates were exposed on the same view, the first plate receiving one, the second eight, the third sixteen, and the fourth thirty seconds of exposure. The plates were then placed together in the above glycin solution (1 : 50). The plate exposed longest required fifteen minutes, the one exposed for a second required four hours, but all the resulting negatives were beautifully clear, perfectly detailed, and of excellent printing qualities. The above-described method of development will be of value in the hands of the beginner, who is guaranteed by its employment against failures.

Writing on Negatives.—Methods of writing names and numbers on negatives have been repeatedly described, but the results obtained with them are not always satisfactory. The following method, suggested by Herr Ungelenk, has answered very well in our hands. The names and numbers with which the negative is to be provided are first written with Indian ink on thin tissue paper, and, after the corresponding portion of the negative has been coated with a small quantity of starch-paste, the piece of tissue paper is mounted on the negative. Finally, the negative, and with it the tissue paper, is varnished. By this means the writing prints very distinctly, so that a subsequent strengthening of the writing with brush and Indian ink is unnecessary.

Quantitative Precipitation of Gold with Hydroxylamine Hydrochlorate.—For the precipitation of the gold salt out of gold chloride solutions, two methods, the one with sulphate of iron, the other with oxalic acid, have hitherto been generally used. Professor A. Lainer prefers the use of hydroxylamine hydrochlorate, which before had given him very good results in precipitating the silver salt out of solutions of silver nitrate, silver sodium thiosulphate, and potassium silver cyanide. If hydroxylamine hydrochlorate and caustic potash are added to a gold chloride solution, and the latter is heated, the process of precipitation will be complete in a few minutes. Professor Lainer states that out of 15 c.c. of a gold chloride solution, containing 0·1277 gramme of gold, 0·1257 gramme of gold was recovered. The gold may be quantitatively precipitated out of warmed, neutral, or even slightly hydrochlorated solutions by means of hydroxylamine hydrochlorate, also without the addition of caustic potash. This method may be advantageously applied to the separation of the gold from the alkalic chlorides. The solution discolours at first, then either fine, shining gold particles are deposited, or the gold is deposited in the form of a brown powder.

Cold Varnishes.—Noteworthy researches have been made by Herr E. Valenta, with regard to the composition of a number of so-called "cold varnishes." About seven different samples of commercial cold varnishes were tested, and, according to their composition, they could be divided into five classes, viz. :—Alcoholic cold varnishes, alcoholic cold varnishes containing ammonia, such containing ether and acetone, benzol cold varnishes, and collodion cold varnishes. Exact formulæ are given for each class of these various varnishes. Only a few of them need be reproduced here.

For the preparation of an alcoholic cold varnish containing ammonia, a solution of ammoniac gas in absolute alcohol answers very well. If shellac is added to a solution of this kind, and the latter slightly heated, the shellac dissolves to a yellow clear liquid. The formula is as follows :—

Ammonia and alcohol absolute ...	100 c.c.
Shellac	8 grammes.

If a thicker varnish is desired, the proportion of the shellac may be raised to 14 grammes.

A good benzol cold varnish may be prepared as follows :—

Benzol....................................	90 c.c.
Alcohol	10 ,,
Gum dammar...........................	8 grammes.

The gum dammar should first be dissolved in the alcohol and then the benzol added. The above varnish may also be applied to prints on paper if it is diluted.

As an improved benzol varnish, the author recommends the following :—

Sandarac..................................	100 grammes.
Benzol	400 c.c.
Acetone	400 ,,
Absolute alcohol	200 ,,

The ingredients are mixed and then filtered through paper. The mixture should be carefully heated in the water-bath ; and will give clear and quickly drying films of remarkable hardness.

◆

The Central Photographic Club is negotiating for premises at Fleet Lane, Ludgate Circus. These consist of basement, with sufficient space for twelve dark rooms ; ground floor ; first floor, comprising a room which will seat 230 persons ; and second floor, which will probably be devoted to smoking-room, library, and other club conveniences. The following are among the supporters of the Club :—Messrs. Birt Acres, Redmond Barrett, Beard, Bedding, F. Bishop, Bolas, W. B. Bolton, Chadwick (Manchester), Archer Clarke, A. Cowan, Dring, J. J. Elliott, B. J. Edwards, Austin Edwards, Thos. Fall, Howard Farmer, Freshwater, T. C. Hepworth, J. A. Hodges, Hindley, Keene (Derby), Geo. Mason (Glasgow), Newman, Pringle, Sandell, Sturmey, Teape, Van der Weyde, E. J. Wall, Welford, Snowden Ward, Warneuke, and Miss Catherine Weed Barnes and Mrs. Welford.

METOL-HAUFF.

We have received for publication the following satisfactory reports concerning this developer :—

Mr. Pringle thus writes :—

"I have examined and experimented with the formulæ sent out from Mr. Hauff's factory, and I find these formulæ convenient and efficient. The formula with potass. carbonate is something more energetic than the formula with soda carbonate. For English workers I give a formula which will be found simple :—

A.—Metol-Hauff	1 pt., or 50 gr.	About 1 °/ₒ metol.
Dissolved in water...	100 pts., or 10 oz.	
Add sodium sulphite	10 pts., or 1 oz.	
B.—Potass. carbonate ...	1 pt., or 1 oz.	10 °/ₒ
Water to	10 pts., or 10 oz.	
C.—Potass. bromide	0·5 pts., or ½ oz.	5 °/ₒ
Water to	10 pts., or 10 oz.	

The developer for normal exposures to consist of 3 parts of A to 1 part of B, to each ounce of which may, as a rule, be added 20 minims of C. For 'snap' exposures omit C. For doubtful or tentative development use 10 minims of C to each ounce of developer.

"Metol-Hauff keeps better in solution with sodium sulphite or potass. metabisulphite than any developing reagent I know. Even in presence of an alkaline carbonate it keeps clear and powerful for a long time. The following solution is powerful, well adapted for portrait work, and keeps for many days, if not weeks. My experiments on this point have not gone beyond fourteen days :—

Water.....................	100 parts,	or 10 ounces.
Metol-Hauff	1·5 ,,	or 75 grains.
Sodium sulphite	10 ,,	or 1 ounce.
Potass. carbonate	10 ,,	or 1 ounce.

"To develop, dilute this stock with equal measure of water, bromide as before. In solution Metol-Hauff does not, but the dry crystals do, stain the skin. The solution can be used over and over again, at least four times. If any weakening of the action be suspected, an additional trace of alkali will counteract it. Consequently Metol-Hauff compares favourably with even the pyrogallol developer in economy of time and money. The solution never stains the plates ; no 'clearing bath' is, therefore, required. I have not seen any tendency to frill the plates, even when using plates which frilled slightly under other treatment, as in the process of clearing after ferrous oxalate.

"Metol-Hauff is as powerful a reducing agent as I know. It has this advantage over pyrogallol that, if a plate is under-exposed, metol will bring out all developable detail without clogging the high light ; pyrogallol would probably bring out as much detail, but the negative in other respects would be inferior to that developed with metol.

"Metol has this advantage over eikonogen, paramidophenol, and the like, in that density is much more easily obtained with metol in case of either under or over exposure. The density obtained with metol is not of the 'black and white' character so frequently seen with such developers as quinol-caustic, but is a more graduated density over the plate. Considerable contrasts of density —as for photo-micrographic or line-copying work—can be got with suitable treatment, consisting, in general terms, of keeping the exposure moderate and using a large proportion of alkali. Next to ferrous oxalate, Metol-Hauff seems to me to have the least tendency to produce fog—*i.e.*, to cause reduction where a minimum of light-action has taken place.

"Metol-Hauff works well—almost indiscriminately—with all the alkalies I have used with it. The caustic alkalies, soda and potash, so unstable in keeping quality, and so hurtful to the skin, are not required. I find it works best with potass. carbonate, but very well with soda carb. and with liquor ammoniæ. Soluble bromide in the developer affects the density more than the detail, and causes the image to appear more slowly than usual; but even with large proportions of free bromide, up to three grains per ounce of developer, the image, when time is allowed, ultimately acquires both detail and density. The density depends mainly, *ceteris paribus*, on the proportion of alkali used. I have successfully developed negatives after normal exposure with a developer containing 1 per cent. of Metol-Hauff, no free bromide, and 9 minims to the ounce of liquor ammoniæ, sp. gr. 880. This surpasses all my previous experience of tolerance of ammonia, and the plates used for this experiment were extremely sensitive (Cadett H. and D. 110). But I do not find ammonia a better or more energetic alkali for metol than potass. carbonate.

"With moderate time the Metol-Hauff and sulphite of soda commercial alone will develop plates that have got even short exposure; the negatives will be full of detail, but probably thin; the density can be at once increased and controlled by gradual addition of an alkaline carbonate. This is a most valuable method for developing plates, the exposure of which is doubtful as to correctness. In this way I have 'made the best of' undoubtedly under-exposed plates.

"For bromide paper the best plan is to use the developer fairly strong; if this be done the tones will be very good. If the developer as a whole is much diluted, or if the alkali is much reduced in proportion, or if too much bromide be added, the tones will be more grey and less black than is usually desired. But when soft greyish prints are required, as for after-toning or intensification, the plan is to dilute the developer.

"For lantern slides I find that Metol-Hauff is excellent, and in some respects almost unique. When the normal developer is slightly diluted the tones are of a warm black, very pleasing on the screen. I am unable with Metol-Hauff to obtain really red, or even sepia tones. I have never known Metol-Hauff to produce the greenish tones so offensive, but so common after errors of exposure in the use of some other developers.

"To sum up, after very numerous, careful, and methodical experiments, I find in Metol-Hauff as a developer the following qualities :—

"1. Great energy.

"2. Great keeping power, even in alkaline solution.

"3. Control over results. In this I consider it almost or quite equal to pyrogallol, and superior to all other developers in use.

"4. Freedom from staining.

"5. Power of giving density.

"6. Adaptability to bromide paper and lantern slides.

"Since the discovery of alkaline pyrogallol as a developer, I have found nothing so good for all-round work as Metol-Hauff."

The foregoing favourable opinion is confirmed by Mr. Spiller, who says :—

"Confirming in every particular my first report, dated July 23rd, 1892, and the statement I made at the January meeting of the Photographic Society, respecting the satisfactory qualities of this developer, I have now the pleasure of informing you that my latest results still bear out the favourable impression created by the work of last year.

"During the recent spell of fine weather I have been trying again Metol-Hauff under varying conditions, and with the newer brands of dry plates, including the 'Sandell' plates, which are among the latest that have come into the market. With all of them alike I have obtained the most successful results, and I feel sure that Metol-Hauff will hold its position quite as well as Amidol-Hauff appears to have done.

"The recommendation I have now to offer as the outcome of my latest experiments is to use the amount of water originally prescribed, and to add the free alkali according to requirements, so as to get a more gradual development, with brilliant images and sufficient density. The proportions I find best for my landscape work are three parts of the normal Metol-Hauff solution mixed with one part of a 10 per cent. solution of washing soda. A mere trace of bromide is required, or none if the same portion of developer is used upon a second plate.

"The remarkably permanent character of the Metol-Hauff solution is, as I said before, a great point in its favour; and to-day I have been using successfully a normal solution made up in October last, with apparently no loss of developing power. It is just as clear as when first prepared, and has remained colourless until the present hour, whilst the negatives obtained with it are eminently satisfactory.

"This fact, taken in conjunction with the quick printing quality of the resulting negatives, will offer great advantages in professional practice; for it is possible to make up a good stock of Metol-Hauff solution, and rely upon having always at hand a standard developer."

* * *

Messrs. Hinton & Co., of Bedford Street, have introduced a new form of focussing screen made of thick and rigid celluloid. It has a matt surface, is absolutely unbreakable, and is lighter than glass.

We have received from Messrs. Houghton & Co., of Holborn, a copy of their excellent new catalogue, which seems to contain everything necessary to the equipment of a photographer. The items are not only described, but are also illustrated in a very effective manner.

SCIENCE AND ART.

At the Camera Club, last week, the Rev. F. C. Lambert gave an interesting address on the above subject—or rather upon the Science of Art. Prefacing his remarks by asserting that he had no thought of being original, but would annex and borrow from the writings and sayings of many authors, including those of the Hon. Secretary, Mr. George Davison, he said that the human mind might be considered under two divisions—the intellectual and the emotional. He proposed to deal with certain physiological conditions which show the groundwork upon which pleasurable sensations are built. We all know that pleasure too often repeated at frequent intervals becomes monotonous, and may become, if carried to excess, positively painful. Taking an illustration from the culinary art, we can, most of us, understand what is meant by a jaded palate. A clever cook knows how to minister to this, and will so arrange his viands and wines that the same set of nervous fibres are not kept in continual action. He would summarise the matter by saying that in order to produce the sensation of pleasure, the nerve must be well nourished, and its stimulus must not be accompanied by excessive waste. There is little (if any) doubt that stimulation and exhaustion of nervous organs is accompanied by metabolism or actual destruction of tissue, and although the amount of such destruction is not measurable, it is there all the same. It is true that the tissue is rapidly repaired, but there surely comes a time when the store of nervous energy is not sufficient to keep pace with the drain upon it, and the rate of waste outstrips reparation.

Pleasure may be physiologically defined as the maximum activity corresponding to the minimum fatigue or waste. Let us take, as we all profess to be artists, the eye as a subject for illustration. We know that it is limited in its command of the spectrum. The ultra-violet rays, the heat rays, and the so-called chemical rays, are beyond its ken. We know, too, from the old experiment of the red or green wafer on a piece of card, that the retinal nerves, which appreciate any particular colour sensation, are exhausted very rapidly, so that in afterwards looking at a white light which embodies all rays, the colour of which the eye has become tired is eliminated, and the complementary colour becomes visible instead of the white. We know, too, what a painful sensation is experienced when we pass a line of palings through which the sunlight shines, the rapid flashes of light alternated with comparative darkness becoming painful to the eyes. A flickering gaslight or electric light gives the same uncomfortable feelings. For these reasons artists are working out certain laws—breadth, or absence of spottiness, for instance. With spottiness—such as is caused by sunlight passing through trees—the mind gets worn out, hence the artist's aim is to mass his lights and shades, and the name he applies to the operation is breadth or repose.

Another kind of exhaustion of the eye is due to focal adjustment, as, for instance, in following a very rapidly moving object, or accommodating for a very near or distant object. It is far more difficult and exhausting to follow a zigzag movement than one which moves in flowing lines. Hence our artists have attained a natural liking for curves, and hence also our objection to geometrical or angular lines in carpets and other decorations. We all profess to go to nature, and in nature there are very few straight lines. With the exception of the horizon and lines of cleavage in crystals, &c., straight lines have been introduced by the hand of man, and should be brought into pictorial composition with extreme caution. Again adverting to the business of the cook, we might compare a superabundance of straight lines to too much pepper. You want just enough to add piquancy to the whole dish, and if you overstep this boundary you inevitably spoil it. It is an old axiom in picture-making—borrowed from the French school of a certain period—that composition should have three distinct parts or divisions—the foreground, the middle distance, and the distance. And the reason for this hard-and-fast rule seems to be the feeling of satisfaction to the mind in passing without abruptness from one part to another. We focus our eyes from point to point, and adjust them to different distances, hence satisfying the *muscle* sense. One more point, a certain amount of mental attention is necessary for us to appreciate a thing. Until there is something to draw one's attention to an idea, one is absolutely ignorant of it.

Mr. Lambert then applied his remarks to our appreciation of pictures generally, and made especial reference to those of Mr. Rowland Briant, which were hanging in the club-room. He described them as extremely interesting but funny pictures which had been produced by an astigmatic lens. (See review of Mr. Briant's paper read before the Camera Club Conference, page 281.) He held that we should be able to see a picture and appreciate its meaning without being unpleasantly conscious of an effort in the operation. In examining the pictures or *fuzzigraphs* referred to, there was with many people a distinct consciousness of effort, and this, he thought, condemned them. He had himself at one time dabbled a little in colour, and tried the impressionist style, but he soon found that it cost him more nerve energy, and that he was paying too much attention to the method of working, and became less productive, and at the same time, less satisfied with that he produced.

There is a limit to our power of enjoying an optical sensation, and that limit is marked, as already indicated, by markedly conscious effort. We lose a certain amount of mental energy in the effort to make out a picture, and those who produce "smudgygraphs" will perhaps pardon the suggestion that they should be produced in the smallest possible quantities. Let them be regarded as appetisers only—pickles, if you will; but it is clear that we cannot dine off pickles without very much disturbing our digestive organs.

Mr. Lambert then admitted that he himself had "committed certain pinholeisms," and he closed a very interesting discourse by the following quotation from the Photographic News (see last week's leader) :—"The pinhole is to be regarded as an interesting and helpful apparatus, which, under exceptional circumstances, may and does yield results more pleasing or less unpleasant than those procured by means of a lens under the same conditions ; but, at the same time, is more akin to medicine rather than a staple article of photographic food—a surgical instrument for critical cases rather than an apparatus or appliance of constant and widespread use."

The paper was followed by an interesting and very good-humoured discussion. Where opinions are diametrically opposed to one another, it is often the case that a little temper will show itself on the part of one or more participants in a debate ; but here at the Camera Club, although plain terms were used, and there was some hard hitting, all was in good taste and enjoyable, and we could not help thinking how a certain other debating chamber might profit by a visit to this one. Mr. Briant opened the ball by defending his position with much spirit, and sticking to his guns. He asserted that the aim of the impressionist was to seek a higher ideal, and endeavour to show pictorially something more than was visible to the ordinary observer. Mr. Humphery followed with a most amusing speech, in which he regretted the absence of the managing director of the Club, who would doubtless have profited by Mr. Lambert's culinary references, and have been thus enabled to impart a little more variety into the daily *menu.* A few remarks from Mr. Elder followed, who quarrelled with Mr. Lambert for using certain scientific terms of definite meaning a loose and vague manner. Mr. Weir Brown thought that the lecturer, in analysing the sensation of pleasure enjoyed when looking at a picture, missed out one very important item. He thought that the power of association had very much to do with our appreciation and enjoyment of a work of art. A primitive man might possibly experience pleasure in looking at a picture, in the manner described by the lecturer, but anyone else would be influenced, to a great extent, by impressions and associations which the picture would call forth. Mr. Davison traversed several of the lecturer's statements, and pleaded for individual interpretation of nature. No two people see the same effect alike. We have to create illusive appearances, and whether we use pinholes or what not, our aim is to make our pictures as effective as possible. He thought that there was such a broad line of demarcation between them, that science and art should be separated. Each should work in its own direction, and that there was recognition of this principle was proved by the custom at exhibitions to keep the scientific class distinct from the artistic. Mr. Stroh thought that there was room for all schools. In music we find that one man liked what another abhorred, and it was the same in the case of pictures. For his part he pleaded for variety. He should be sorry to see a collection of pictures which were all rigorously sharp, nor would he care for one where all were fuzzy. He thought it a pity that there should exist any antagonism between distinct schools. After a reply by Mr. Lambert, the meeting closed with a vote of thanks to him for his instructive and entertaining lecture.

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THE ROYAL ACADEMY.—II.

BY SOL, JUNIOR.

IN a former article I suggested that visitors to the Academy should take the principal gallery to begin with while still fresh and untired. I will continue the advice and advise them after that to go to Gallery IX., where all the smaller pictures are hung, 181 in all, and most of them good, and many of them much more than good. As a sort of olive to the wine to follow, look, before going to this room, at the last numbered picture in Gallery VIII., No. 615, a portrait of H. M. Stanley by the explorer's wife. It is somewhat gruesome, and the background is apparently suggested by a recollection of an unwholesome African sky. Its exhibition can only be looked upon as a distinct act of favouritism. Among so many good works as are to be found between Nos. 616 and 797 it is difficult to choose, but the few alluded to here are, I think, the pick. No. 633, "Peaches," Edward Bach, is a very rich work. No. 638, "Hark Away," by T. Blinks, shows great appreciation of detail and finished workmanship. No. 641, by E. J. Gregory, A.R.A., a charming piece of work with a skilfully-treated peep of sunshine. No. 656, "An Idle Maid," by L. Davies, is admirable both in colour and drawing, and shows great dexterity of manipulation. No. 666, "The Washerwoman's Family," by F. Hind, is one of the most original works here ; it is beautifully painted, it is quaint, and, though upsetting all the supposed laws of composition, is still harmonious and comfortable to look at. In 671, "On the Way to Market," by R. W. Macbeth, A.R.A., we come to, if among so many good things we may say so, about the most accomplished work in the gallery. The colour is superb, the drawing faultless, and, for delicacy of handling, unapproachable by any other picture that even this clever artist himself has ever done. Note the loving care with which the smaller details are attended to ; they do not intrude themselves, but they are to be found when looked for. Look at the public-house on the distant bank, with the man on horseback having a drink, and the bird in the cage—you can see that is a magpie—and at the stem of the pipe the old man is smoking ; elaborate and yet subordinated finish cannot, I think, go further than this. No. 688, "Morning Lessons," by Jessica Hayllar, is another work showing extraordinary power of finish ; but here it is almost too much so, and becomes nearly oppressive, as it lacks the breadth of Macbeth's picture, and yet it would be churlish not to give every praise to the sunshine as shown on the carpet, and the masterly—can we say that of a lady's work?—painting of the pot of flowers in the corner. No. 703, "Gone," by Dudley Hardy, is entirely opposite in treatment to the before-mentioned, but is none the less interesting. No. 707, "Sweet Contentment," by W. H. Trood, carries, I think, dog painting to its pinnacle. I think I know most of Landseer's pictures pretty well by heart, but even he, as far as I can think, never did anything, in its own line, to beat this brilliant and beautiful bit of work. No. 711, "Distant View of Portland," by A. F. Maitland, is worth inspection, if only as a foil to the previously alluded to picture. No. 735, "Pursued," by A. Gow, R.A., shows a great amount of care, but is hardly as fine as his No. 767, "A Spanish Highway," which is Meissonier-like in its execution, though, perhaps, a little broader in treatment than that master. I take exception, however, to the Duke of Wellington being represented in a red coat and a large cocked hat; a blue coat and a small hat was his almost invariable attire. To go back to our proper order, No. 748, "Sitting for Her Portrait," by J. W. Godward, is almost a revelation—we always thought there was but one Tadema, but it appears there is another Richmond (not the R.A.) in the field. Plagiarism, of course, is not only wicked, but bad taste, we know, and this picture is an absolute "crib" from Tadema as regards the composition, painting, and general treatment. If that were all, of course it would be indefensible, but the odd thing is that it is as good as a picture by Tadema himself, and—dare we say it?—in some respects a little better. No. 761, "The Marshes at Winchelsea," by F. Whitehead, shows a good effect of light, and No. 781, "Cupboard Love," by P. H. Fisher, presents pretty delicate colour. The visitor now having quietly seen the small choice pictures can go into Room No. 1 and fight his way through the crowd and take his chance of what he may be allowed to look at. No. 7, "Charge of Light Dragoons," by E. A. Crofts, A.R.A., is a good old-fashioned picture of a good old-fashioned fight with lots of go in it, everybody killing everybody else. No. 8, "Miss H. and Miss S.," by H. Bishop, suggests a flashlight picture. No. 10, "Portrait," by S. Forbes, A.R.A., is a wonderfully strong, uncompromising piece of portraiture. No. 14, "Farewell," by the President, shows curious composition, with the copper-coloured cloud streaming out of the top of the woman's head to the top of the canvas, where it is met by some slabs of blue paint. No. 18, "John Hare," by Millais, is the only good thing he has here. No. 19, "Music, &c.," by Orchardson, is very highly wrought, but hardly shows this R.A. at his best. No. 43, "The Old Bridge," by E. A. Waterlow, A.R.A., shows a scene well within the photographer's limits, and in No. 47, "Robert and Susan to the Rescue," the interest is increased by the title; which, Mr. Wyllie, A.R.A., intended for Robert, and which for Susan, is a matter for conjecture, as is also the whom or the what that they are going to rescue. Gallery II., No. 57, "A Cottage Girl," by Clausen, is a worship of the ugly style of picture. Why—oh! why are these things? Who would like to live in a room with this dreadful child with blackberry eyes, No. 77, "A Highland Storm," by MacWhirter, R.A., indifferent painting, but good impressionism; you can feel the wind that is bending the tree, and, perhaps, cheat your senses into believing that the white paint is roaring, falling water. No. 83, "The New Will," by Dendy Sadler (himself one of the most accomplished of amateur photographers, though he does very little in it now in consequence of a report having got about to the effect that he used photographs to paint from, which, as he explained to the writer of this, was as untrue in fact, as it is useless in practice), is a very good bit of work. The old gentleman in the very palpable wig and the green trousers, and the old lawyer, who evidently thinks that the old gentleman has made a fool of himself, are fine pieces of character drawing. No. 98, "A Hamadryad," by Waterhouse, A.R.A., a decorative picture, rather like a Burne-Jones, with the difference that the woman is both pretty and graceful. Nos. 105, 109, and 113, by Sir F. Leighton, P. Cockerell, and Alma Tadema, R.A., call for attention; observe the painting of the brass-lined step in the latter. Gallery III., No. 125, by Macbeth, A.R.A., "The Schoolmaster's Garden," is a brilliant picture, and No. 210, "Elizabeth Woodville," by Calderon, R.A., is a fine, wholesome, honest picture: both omitted in the notice of this gallery last week. Gallery IV., "June Roses," by Gunning King, suggests a new idea in the way of accessories for photographers; it might easily be made, and would come as a useful change in portraiture. No. 266, "Pale Cold Face, &c.," by L. Watts, a strangely arranged portrait, everything sacrificed to the head and hands, which, however, are particularly well painted. No. 279, "The Child Handel," by Margaret Dicksee, is as pleasant and happy a picture as is to be found on the walls; the little child playing at the harpsichord in his nightgown is very sweetly depicted. No. 307, "Kittens," by W. R. Symonds, is a very nice out-of-focus sort of picture, Gallery V. contains several works of more or less interest, but few calling for special remark, though No. 358, by H. S. Marks, R.A.; No. 375, "The Sleep of the Gods," by A. Hacker; No. 369, by T. Fraser, "An Easterly Breeze," and No. 387, "The Sicilian Sea," by T. Brett, R.A., are all good. Gallery VI., No. 417, "Breakers Among the Reefs," T. Brett, R.A., shows the water as looking rather harder than the rocks. No. 426, "A Glass of Wine with Cæsar Borgia," by T. Collier, is a noble piece of painting. No. 434, "Corvette Shortening Sail," T. Somerscales, is a very fine seascape; note the light on the top of the water and the dainty way in which the ship rides and the excellent drawing of it. No. 444, "Le Passant," by Rupert Bunny, is apparently either an advertisement for a frame maker or a warning to other artists. No. 446, "Last Words," by T. Graham, is very tender both in colour and sentiment. No. 447, "Angels Entertaining, &c.," by M. Stokes, shows what artists can perpetrate at times. Gallery VII., No. 492, "The Interval," by John Bacon, shows wonderful realistic painting; apple-faced old lady with no back hair and a very high light in her right eye, child in nightdress, young lady sitting in window seat, and magenta or puce cushions, very rich and strong in colour, but the reason for the title is obscure. No. 499, "By Mead and Stream," is a fine example of B. W. Leader, A.R.A. No. 519, "A Summer Dinner Party," by Chevallier Tayler, one of the many candlelight pictures here, and very beautiful it is, though one wonders why the two prominent figures, evidently portraits, look so very dismal and constrained, with so many good things in decanters within their reach. In Gallery X., Nos. 809 and 837, two fine landscapes by Alfred East, will repay the landscape student's attention, and No. 863, "Evening," by J. H. Lorimer, is very amusing; one wonders if the lady at the head of the table is the mother of all the children sitting round her, and how it is that five out of the eleven are twins, as it were, and why they are so ugly, and whether the lady is also the mother of the baby in arms held by the Malay-looking female with a towel round her head. Gallery XI., yet another candlelight picture, a fine work by Solomon J. Solomon. No. 923, "Evening Song," by Geo. Clausen, an extraordinary arrangement, both of colour and pose.

Space prevents a detailed notice of the water-colours, but the room will well repay a visit, not only for the sake of the drawings, many of which are very good, but for the fact that there are 122 miniatures, an art photography was supposed to have been the death of; but the number as well as the excellence of many of the exhibits seem to prove that this is somewhat of a fallacy.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

8,956. Charles Edwin Pettitt, 55, Chancery Lane, London, "Improvements in the Manufacture of Sensitive Plates and Films for Photographic Purposes, and in the Treatment of such Plates and Films after Exposure in the Camera."—*May 4th*, 1893.

9,072. Sylvester North Gordon and Sydney Clapton Wicks, 32, Beverley Road, Anerley, London, "'The Phrenoscopic Camera,' being an instrument for the production of binocular perspective in a single photograph."—*May 6th*, 1893.

9,106. E. H. Fitch, 34, Angell Road, Brixton, London, "Improved Dark Slide for exposing Celluloid Films in Photographic Camera."—*May 6th*, 1893.

9,107. Henry Grant Madan Conybeare, 31, Southampton Buildings, Chancery Lane, London, "Improvements in, and in Connection with, Photographic Cameras, known as Hand or Detective Cameras."—*May 6th*, 1893.

9,118. Charlton James Wollaston and John Stuart, 47, Lincoln's Inn Fields, London, "Improved Means for operating Photographic Shutters."—*May 6th*, 1893.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

May 11th.—Mr. W. E. **Debenham** in the Chair.

Question: "Why is it recommended to use bromide of potassium to the solution of mercury used in intensifying?"

Mr. R. P. **Drage** thought that it kept the shadows from filling up.

Mr. T. **Bedding** suggested that the solubility of the bichloride was increased by the addition.

The **Chairman** said that Mr. Arnold Spiller had pointed out that bichloride of mercury, unless acidified, entered into combination with gelatine. Thus it might be that bromide of the silver and mercury was more amenable to the after treatment with cyanide of silver than chloride would be.

Mr. W. **Harrison** read a paper on the question as to whether the present construction of studios was wrong in principle. The idea he put forth was essentially that the light from the northern sky is so weak that it would be better to substitute a whitewashed wall, lighted by sunshine, as the source of light.

Mr. A. **Cowan** said that this was quite a new idea. He would like to see it tried, but did not fancy that it would equal the usual plan.

Mr. P. **Everitt** inquired how it would answer when there was no sun.

Mr. **Harrison** replied that there would still be a light from the southern sky reflected from the white wall, instead of from the particles and impurities of the air.

Mr. W. **Cobb** would not like to depend altogether upon reflected light. He certainly did not think that the results would be equal to those obtained by direct light.

Mr. **Everitt** suggested that it was a mistake to suppose that the proposed construction would be cheap. The raising of a large wall was in itself an expensive affair.

Mr. **Cooke** said that the question was whether reflected light was stronger than direct light.

Mr. **Harrison** contended that reflected light was always used; but was not that reflected from a white wall stronger than that which passed through the atmosphere from south to north, and was then only reflected by the uncertain amount of particles that might happen to be present?

Mr. E. W. **Parfitt** suggested the question as to whether in enlarging more light was obtained by pointing the camera direct to the sky or to a vertical white surface.

Mr. **Welford** had once tried printing by the light reflected from a white wall, and found it very slow.

The **Chairman** thought that Mr. Harrison had much under-estimated the value of the light coming from a northern sky. If it were really so inoperative as assumed, the exposures in the country, where the air was freer from dust particles than in London, ought to be longer. Then he thought that the sitter, as shown in Mr. Harrison's diagram, would be overdone with top light, and it would be very difficult to keep direct sun from the background and from the sitter. The exposures, too, would be continually varying as the sun shone or was obscured. Nevertheless, he thanked Mr. Harrison for bringing forward his idea at that Society.

Photographic Society of Great Britain.

Ordinary Meeting, held on May 9th, at 50, *Great Russell Street.*—The **President** (Captain W. de W. Abney, C.B., R.E.) in the Chair.

It was announced that the Brixton and Clapham Camera Club had been affiliated.

Captain A. M. **Mantell**, R.E., read a paper, entitled "On the Use of Tin Foil as a Support for Photo-Lithographic Transfers."

Mr. Leon **Warnerke** suggested the use of silver foil for the purpose, which he had found most suitable in another photo-mechanical process, and which was easily obtainable commercially.

Mr. T. **Bolas** inquired whether the foil could be used for re-transfers from the stone.

Captain **Mantell** stated that it could, having the advantage of the absence of distortion, but, at the same time, it was awkward to keep.

Captain **Abney** stated that some twelve years ago tin foil was employed at Chatham, the results of which were very satisfactory, but there was great difficulty in obtaining suitable foil, which difficulty Captain Mantell had evidently overcome. He congratulated the latter on having retained the services of Mr. Husband at Chatham. There was one point upon which he (Captain Abney) was at total variance with Captain Mantell, and that was, that a process block was not required for military work; in his opinion it was of the greatest use.

A paper was then read by Captain **Abney** "Upon Some Uses of a Moving Sensitive Surface." Amongst the applications of such an instrument were the measurement of the speed and efficiency of shutters, the measurement of the duration of a flash lamp, the comparison of the photographic intensities of sun and candle light, &c.

Mr. G. L. **Addenbrooke** gave some description of an instrument, which he described before the Photographic Society some ten years ago, for the measurement of the speed of shutters.

Captain **Abney** pointed out that such an instrument was not of any use for measuring the efficiency of the shutter, nor for performing the other operations which he had enumerated.

At the technical meeting of the Society, to be held on May 23rd, Mr. **England** will discourse on the Daguerreotype process, with a demonstration.

Hackney Photographic Society.

Ordinary Meeting, held Tuesday, May 9th.—Mr. T. H. **Smith** in the Chair.

Mr. **Maxwell** was elected a member.

Mr. **Hensler** said he had broken his focussing glass when in New Zealand, but, as he had previously worked his camera in distances, the difficulty was overcome.—Mr. **Beckett** advised using a xylonite film (which would not easily break), but said, in having distances scaled as mentioned, the trouble was getting the principal focus—*i.e.*, foreground or distance.—Mr. **Grant** used, on emergency, a plate put in hypo till nearly clear, then washed out.—Mr. **Hudson** protected his focussing screen by using a piece of thin wood. —From the question box: "What can be done with hydroquinone formula (Ilford) in which crystals had not dissolved?" Mr. **Roofe** had had markings on his plate under such circumstances.—Some discussion ensued, but filtering was eventually recommended.—Another question was asked: "Was it necessary to rock during development?" The reply was: "Yes, as particles might cause stains, and marked appearance would sometimes result."—Mr. **Hensler** asked for amidol formula for lantern plates, and was recommended by Mr. S. T. **Beckett** to use any, but with plenty of bromide. —Mr. **Grant** asked for probable exposure for ordinary room. Several replies were given, but *f*/22 Sandell plate, ten minutes, was mostly favoured.—Mr. A. **Barker** asked were uranium-toned prints permanent? Mr. S. **Beckett** said it was doubtful. He thought that if developed in the first instance with ferrous oxalate they would deteriorate.—Mr. **Sodeau** *startled* the Society with showing a shilling hand camera. He proceeded to explain it worked at *f*/22, amidst much mirth, and numerous questions were asked of a hilarious kind.—Mr. T. H. **Smith** asked what plates were best to use for cloud negatives.—Mr. **Hensler** had used isochromatic ones.—Mr. R. **Beckett** said they were good when there is a yellow sunset, but for a bright blue sky the yellow screen should be used. He made an exposure last week on a Barnet rapid *f*/18, $\frac{1}{10}$ sec., and had a good result. Clouds, he said, were often printed in too deeply; what was wanted was delicate, not hard clouds.—Mr. **Cross** showed print from cloud negative, the negative of which he had taken by *cap* exposure, using slow plate and developer weak in alkali.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Mona.—The book is published by Gauthier-Villars et Fils (Paris), and you could get it through Messrs. Hatchette, of Chandos Street, London.

Pop.—The following formula for an aqueous varnish will possibly answer your purpose. It is suitable for films:—

Soda carb.	2 grammes
Borax	8 „
Warm water	160 c.c.

Dissolve and add:—

Crushed gum lac.	32 grammes

Stir until the gum lac. is dissolved, add 2 grammes of glycerine and enough water to increase the volume to 320 c.c. A deposit will form in the course of a few days which must be filtered out. The films, after half-an-hour's draining in a rack, are immersed in the varnish for five minutes.

L. O.—It is very often difficult in Continental towns to get plates of English standard sizes, and we should, therefore, advise you to take a sufficient supply of plates or films in order to prevent disappointment. Even in Rome, we are told, this difficulty was lately experienced.

X. Y. Z.—A camera, such as you describe, was introduced many years ago, and sold in this country, if we remember, rightly, by Leohertrer, Barbe, & Co., the artist-colourmen of The Quadrant, Regent Street. It was lined with a waterproof material, and the developing solution was injected through a hole in the top by means of a syringe. The firm just named could possibly tell you more about it, for we are writing from memory, and memory is apt to fail in the case of a thing of no permanent value.

Madame K.—The light effect bordering the white tablecloth in your picture is halation pure and simple. The means by which it may be overcome will be sufficiently known to you. You can cure the evil on the present negative by judicious rubbing with spirit on washleather or linen.

G. J.—This is not new. The gun form of camera we take to be a mistake, except in the case of photographing a flight of birds, when it is the most convenient thing with which to follow the object.

L. L.—The blackened eikonogen crystals can be restored by washing and removing the water as it becomes discoloured. Dry the crystals on blotting-paper and dissolve as soon as convenient in the usual sulphite solution.

Janet.—"Secret processes" are generally very old ideas served up afresh for the benefit of the impecunious purveyor. Have nothing to do with the matter.

Metol.—See reports of this developer in our present issue.

Duffer.—The sample of indiarubber solution which you are using is evidently too thin. Reject it and albumenise your glasses before coating. The white of one egg to six ounces of water, with ammonia added, will give you what you want. It is only necessary to apply the albumen to the edges of the plate, but you can coat the entire surface if you prefer to do so.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1812. MAY 26, 1893.

NOTES.

THE Photographic Convention of the United Kingdom meets at Plymouth, during the week beginning on the 3rd of July next. The Mayor has very kindly consented to set apart the Western Law Court for the use of the Convention during that week, while the Art Gallery has been offered by the Plymouth Institution for the exhibition of pictures and apparatus. Plymouth and its surroundings offer such temptations to the tourist photographer that it is expected that a large number will avail themselves of this opportunity of visiting beautiful Devonshire.

THE Paris Photographers' Benevolent Association have hit upon a method of coaxing funds from the pockets of the public, which they evidently believe to be original. The idea is to enlist the services of a company of actors, and to photograph them in groups during the performance of a play, or in accordance with the design of a poem or other literary composition. These photographs will afterwards be converted into lantern slides and projected on a screen, while an accomplished elocutionist declaims the necessary words.

As we have hinted, the idea is by no means new. At the Polytechnic Institution, during the closing years of its career as a place of public entertainment, a kind of travesty of Faust was produced, in order to illustrate a very perfect form of optical illusion. The little piece was written by F. C. Burnand, and part of it was enacted on the stage; but the greater part was recited by genial George Buckland, while photographs of the grouped characters—produced by the late Mr. Dixon, of Albany Street—were thrown on the large screen. This was about fourteen years ago.

THE Polytechnic has changed its methods since those old days; but it is doing good work, and good photographic work, too. Under the auspices of Mr. Howard Farmer students are receiving first-class instruction there, and several large photographs, exhibited in the windows looking upon Regent Street, testify to the excellence of the work done.

IT is out of all reason that a lantern explosion should be recorded in the merry month of May, when lanterns, gas-bags, and bottles are supposed to be snugly packed away, until winter again comes round. But there is one kind of lantern that knows no rest, summer or winter, and that is the lime-light box, with bullseye and coloured screens, that gives at our theatres the semblance of sunset, moonlight, and fairy-light. A tank for the supply of gas to these arrangements exploded the other night from some unexplained cause, and two men were hurt sufficiently to justify their removal to the London Hospital.

IT is difficult, without a detailed report, to account for such an explosion as this. If the tank be a gas-holder (of the usual gasworks pattern) made of zinc, and it be designed for oxygen, the accidental mingling with the water of a little acid will generate hydrogen, and then at once we have an explosive mixture. But we know of one case where an explosion occurred in a gas-holder which could not be thus explained, and was never accounted for.

THE new monthly art publication, *The Studio*, which commenced a most promising career in April last, contains in its May number the first of a series of articles, by various experts, on the subject of drawing for reproduction by process work. This first article deals with outline work, and various good illustrations are given, including pictures by Herbert Railton, Carl Haag, and F. Powell. Various very interesting examples are also given of work on lined paper, which show how effective such simple means become in the hands of an artist.

SOME wicked persons have been ironically complimenting a prominent official connected with the Imperial Institute on the extraordinary rapidity with which his photograph was reproduced in the papers. It seems that on the 10th this gentleman had the Order of St. Michael and St. George conferred upon him, and on the 12th the photograph of himself in full uniform and wearing the order in question was reproduced in an evening paper!

THE promptitude shown in being thus up to date is unquestionably characteristic; but, apart from this personal view of the matter, there is no doubt the quickness with which the Meisenbach and analogous processes are worked nowadays has placed great pictorial facilities in the hands of newspaper editors. Five or six years ago, the reproduction of a photograph by these methods could not be done under a week, and eight or nine days were preferred. A couple of days, or even less, now suffices. Papers which used to have photographic portraits drawn on transfer paper as the quickest mode of reproduction now dispense with the services of the artists and employ the Meisenbach process. The results are, of course, much more satisfactory, while the cost, instead of being double, as it once was, of the artist's drawing and the zinc block, now comes to very little more.

VERY elaborate arrangements were made at the opening of the Gardening and Forestry Exhibition at Earl's Court for photographing the Duke of York and the other notabilities who took part in the ceremony. Three cameras were fixed in the gallery, and everything was in readiness; but, by some misunderstanding at the crucial moment the distinguished personages turned their faces the wrong way, and so all that the photographs portrayed was their backs. Most of the artists of the illustrated papers were in the same predicament. It was understood that everything would be witnessed from the gallery, but, as it turned out, very little was seen. It is not quite clear how the mischance arose.

AUSTRALIA'S fourteen-feet photograph at the Chicago Exhibition, mentioned in these columns last week, is a mere pigmy in comparison with the photograph of which information has just been received by the Geographical Society of France. This is a photograph, 433 feet long, taken by Dr. Piassetzky during his travels on the Transcaspian Railway between Ouzan-Ada and Samarcand. If this photograph really is, as one American paper gravely puts it, "a vivid reproduction of the whole country between the Caspian Sea and the ancient capital of Tamerlane," Dr. Piassetzky cannot have found his 433-feet photograph any too big, for the distance represented cannot be less, as the crow flies, than some 800 miles.

DESPITE the photographs of Mr. Dixon, Mr. Haes, Mr. Gambier Bolton, and last, but not least, those of M. Anschutz, artists persist in going wrong in the delineation of animals. Mr. Tegetmeier, the well-known naturalist, has devoted himself, as he did last year, to criticising the animals in the Academy pictures, with the result that Sir Frederic Leighton has been convicted of drawing faulty leopards and birds of no recognisable species in his "Rispah." Mr. Nettleship, according to Mr. Tegetmeier, does not know how a tiger drinks: Mr. Briton Rivière has never seen a dead tigress, for he has made his dead bodies very much alive, if not kicking; Lady Butler's camels are not the real thing; while even the canine expert, Mr. Burton Barber, has come to grief over the hind legs of a dog.

THE Aberdeen Steam Navigation Company are endeavouring to tempt tourists to visit bonny Scotland and its islands by the issue of a capital little pamphlet, with the inviting title, "St. Paul's to the Highlands and Back." This attractive little book contains an interesting account of the pleasant trip, and it is illustrated with a large number of Meisenbach blocks, prepared from wash drawings as well as photographs. We commend it to the attention of our readers.

ACCORDING to *Photographic Mosaics*, the excellent annual published in connection with *Wilson's Magazine* (New York), Mr. A. Helmhold, a veteran photographer, has brought out a hardening material which will make negatives heat-proof, so that they can be dried quickly immediately after washing, without any fear of the film frilling or running off the glass. Curiously enough, the following formula, by Dr. J. G. Higgins, for accomplishing the same result in a special fixing bath, is printed on the very next page. This fixing-bath is made by taking:—

Chrome alum	¾ ounce.
Soda sulphite (powdered)	1 ,,
Water	8 ounces.

Dissolve and pour into—

Hypo	¼ pound.
Water	12 ounces.

After remaining in this bath for quite ten minutes, after fixation appears to be complete, the negative may be removed and flushed with scalding water without slipping or softening of the film. But care should be taken that a negative so treated should be one requiring no after-treatment, for the film becomes repellent of all interference.

SOME EXPERIMENTS WITH THE LIMELIGHT.

BY CECIL M. HEPWORTH.

THERE is considerable difference of opinion among users of the limelight as to which jet should be employed for the optical lantern — the “blow-through” or the “mixed.” Both have their admirers. The question is, also, often raised as to which kind of lime gives the better light —the hard kind of cylinder or the soft. It was with a view to inquiry into these questions that I recently tried some experiments with both the forms of jet named, and with both varieties of lime cylinder ; and I will now endeavour to place before my readers the results at which I arrived.

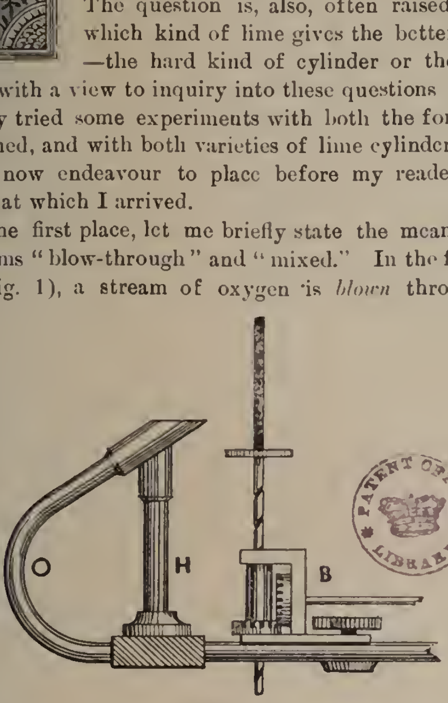

Fig. 1.

PATENT OFFICE LIBRARY

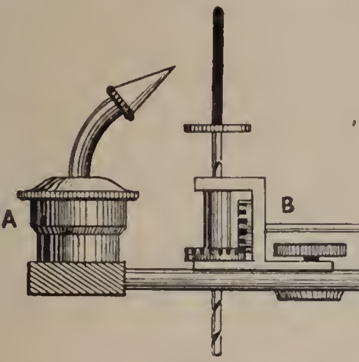

Fig. 2.

In the first place, let me briefly state the meaning of the terms “blow-through” and “mixed.” In the former (see Fig. 1), a stream of oxygen is *blown* through a hydrogen flame on to a cylinder of lime, which is thereby rendered incandescent. In the latter (Fig. 2) the two gases are mixed in a chamber (A) provided for the purpose, and are then directed on to the lime by the blow-pipe. In order to determine which of the jets was the more suitable for the optical lantern, &c., I took an enlarged photograph of the lime cylinder, as rendered incandescent, first by the blow-through jet (Fig. 3), and secondly by the mixed jet (Fig. 4), the gases being so regulated in each case as to produce an approximately equal amount of light. The two photographs, which were taken under precisely similar conditions, prove, beyond dispute, that the heat from the blow-through jet covers a much larger area of the lime than that from the mixed jet, though only giving the same amount of light. To fully understand the importance of this, it will be necessary to glance at the principle of the optical or magic lantern. As most people know, this instrument consists in its simplest form of a source o light L (Fig. 6), a condenser C, which brings the divergent rays of light to a focus at the point O, where a lens, called the objective, is placed to receive them. It is necessary that this objective be placed at such a distance from the slide S, which is just in front of the condenser, that the rays from each portion of that slide are brought to a focus on a screen placed to receive them, and this distance varies inversely with the distance of the screen It follows, therefore, that the source of light will require to be adjusted behind the condenser at such a distance as to bring the rays of light to a focus on the objective. If, instead of the lens, we place a piece of card at the point O, we shall find that the spot of light is really an inverted image of the source of light L, and that the size of this image is directly proportional to the size of the source of light. From this it follows that, if the blow-through jet be used, the beam of light which passes through the objective will be of much larger diameter than if the mixed jet be used—that is to say, it will occupy more surface of the lens in passing through, consequently we shall get more spherical aberration, and the definition will suffer considerably. Nor will it do to stop down the lens, for, if we do, a large black crescent or circle will appear on the screen, completely blotting out the picture.

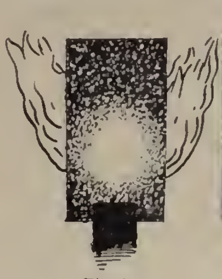

Fig. 3.

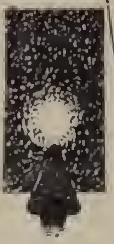

Fig. 4.

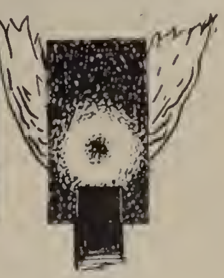

Fig. 5.

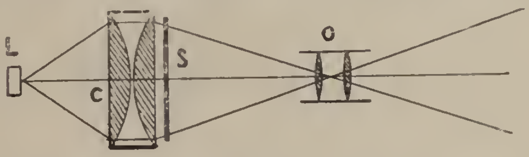

Fig. 6.

But there are other considerations in determining which jet shall be used—viz., the element of danger supposed by many to be associated with the use of the mixed jet, and the supposed necessity of having the two gases under high and precisely equal pressures. I will treat of these separately. In the first place, there can be no danger of an explosion until the gases have become mixed in one of the bags or other receptacles in which they are contained. Now, it stands to reason that the oxygen cannot possibly get into the hydrogen tubes, or the hydrogen into the oxygen tubes, without the light being first extinguished, because equal quantities of the two gases are required to maintain the light, and it is quite impossible for two gases to travel in opposite directions along the same tube at the same time. Therefore, it will be seen that it is *not* necessary to have the two gases under equal pressure. In fact, I constantly use a mixed jet, with hydrogen from the main (pressure $1\frac{1}{4}$ inches of water), and oxygen from my gas-holder (pressure, 8 inches of water), or from a cylinder (pressure practically unlimited). Thus, you see, it is perfectly practicable to use the mixed jet under similar conditions to those for the blow-through, and with the following advantages :—(1) More light ; (2) less oxygen used ; (3) size of light smaller, therefore increased definition ; (4) entire absence of noise.

As to which kind of lime should be used, there is no doubt that the soft limes yield a more brilliant light than the hard ; moreover, they are much better turned, and better made in every way ; and, for the blow-through jet, they are everything that could be desired. With precisely the same amount of gas used with this jet, the soft lime gives exactly 15 per cent. more light than the hard. Again, with the mixed jet, the soft lime gives about 3 per cent. more light *when first started* ; but in a few seconds the light begins to deteriorate rapidly, owing to the fact that the heat developed by this powerful jet soon pierces large holes in the lime—which, of course, is practically the same thing as shifting the lime further from the nipple of the jet—and the immediate result is less light. This can hardly be remedied by turning the lime, as the consumption is so rapid that it would require turning every few seconds, and constantly presenting a cold surface to the action of the jet reduces the light Even with the blow-through jet the lime will require turning every few minutes, though this jet has very little pitting effect on the hard lime. But hard lime will be rapidly pitted by the mixed jet, and, if it be not constantly turned, the light will first be diminished, and then, probably, the concave surface of the lime will throw back the flame, perhaps on to the condenser, which would, of course, be cracked.

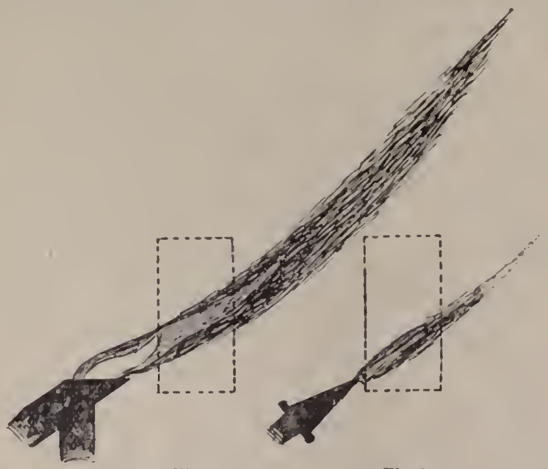

Fig. 7. Fig. 8.

The distance of the lime from the nipple of the jet has a great deal to do with the amount of light. This will be easily understood by reference to my diagrams (Figs. 7 and 8). The former is a representation of the flame from the blow-through jet, the gases being correctly balanced to give the best light, and the lime then removed. The latter shows the flame of the mixed jet under the same conditions. The dotted lines show the best position for the lime. If more gas be turned on, the tip of the white flame will be farther from the nipple of the jet, and, as this is the point of greatest heat, the lime should be moved farther also. Fig. 5 shows the effect of placing the lime too near the nipple of the blow-through jet.

When using a biunial lantern, mixed jets will be found far superior to the other variety, for the following reasons :—If the blow-through jet be employed, it will be necessary to use a bye-pass on the oxygen as well as the hydrogen taps, because, if the former be turned off for any length of time, the gas in the inner tube of the jet will gradually change places with the surrounding hydrogen in the outer tube, the result being that, when the oxygen is again turned on, the mixed gases will give a sharp crack, probably extinguishing the flame. This is obviated by the use of a bye-pass. When one picture is dissolved into the other by turning the gas off one jet and on to the other, the lime of the off jet remains in a state of glowing red heat for a much longer period than it would if the mixed jet were used. This is due partly to the fact that the flame from this jet is so large that the entire lime becomes greatly heated, and therefore takes a long while to cool, and partly to the bye-pass of oxygen. Whatever be the cause, the effect is very disagreeable, a dull red glow from the off lantern dyeing the darker portions of the picture which is being projected from the other. The only means of obviating this is to cap the lens directly after dissolving. There is, of course, a risk of forgetting to uncap it again before redissolving, when the sudden darkness will be rather startling.

My blow-through jet, which was made by one of the best makers, burns 55 cubic inches of oxygen per minute, while the mixed jet burns 37 inches, and gives nearly 20 per cent. more light. These are not random figures, but are the result of careful experiment.

I may mention that, if the mixed jet be required for use with hydrogen—*i.e.*, coal-gas—at the ordinary house supply pressure, it will be necessary to have a much larger outlet in the nipple than is usually employed with gases at high pressure ; but this outlet must not be too large, or the flame may "flash back" and burn inside the mixing chamber, which would be quickly melted up unless the taps be immediately shut off. The largest size consistent with safety is about ·05 of an inch.

* * *

The first of the Polytechnic trips for the World's Fair, at Chicago, arrived in New York on Friday last. These trips will be continued weekly up to August 5th. Parties travel by the Guion line from Liverpool fortnightly, and from Southampton every Friday and Saturday by the Inman and Hamburg-American lines. A few vacancies still remain. Full detailed prospectus on application to the Secretary, Polytechnic, 309, Regent Street, W.

THE PICTORIAL MODIFICATION OF PHOTOGRAPHIC PERSPECTIVE.

BY H. VAN DER WEYDE.

(*Concluded from page* 311.)

MR. W. E. DEBENHAM said that it was not necessary to say how much they were all interested in seeing these results, but those who felt as he did must protest against it being asserted that the instrument used was an optical corrector; it was, as had been said, a sophisticator, and he protested strongly against the expression that optical truth was not visual truth, and maintained that images obtained in this way were not visually true. The two expressions, optical truth and visual truth, were, in fact, interchangeable. There were three objects in using an arrangement of this kind, one being to change the character of the perspective. Now, photographic perspective was simply a representation of objects larger in proportion as they were nearer; in fact, as they appeared to the eye. If one stood near a long building, and looked at it sideways, the near wall might appear half as high again as the wall at the other end; but no one would call it a distortion to represent it so, and every painter would so paint it, just as it was seen, and as a photograph would give it. If they saw trees in the foreground, and in the middle distance, a near tree might appear perhaps three times as high as a tree in the middle distance; the artist recognised that, and it was so accepted. But in representing single-figure pictures, artists had not been in the habit of representing the advanced portion of a figure larger in proportion. Now pictures appeared to be for the most part judged, not by the beholder's knowledge, and by comparison with the original subject, but by comparison with other pictorial representations of similar subjects to which he was accustomed. A Chinaman was perfectly satisfied to see objects which he knew to be of one size represented of one size, although at different distances; they were accustomed, in buildings and in a general sense, to see nearer objects represented larger than more distant ones, but they were not accustomed to see single figures painted in that manner, and, therefore, when a photograph showed a protruding hand larger, and one in the opposite direction smaller, it was said that photography distorted. It was said that a man's boots were not twice as large as his head, and so on. Of course, it would be an extraordinary position for a photographer to choose, and no artist would choose such a pose, but, if it were adopted, the true representation would be exactly as the photograph gave it. However, as people were not thoroughly accustomed to perspective in single figure pictures, there was something to be said in favour of a sophistication to this extent, which brought the picture more in accordance with what they were accustomed to. The second point was that this contrivance enabled the photographer to make pictures more in accordance with the conventional ideal. It was said that sitters complained that their waists and heads were too large; he was not now speaking of perspective effects, when one portion of the body was nearer the camera, but of waists and heads generally being too large. Too large for what? Simply for the conventional ideal, according to which they had been accustomed to see them painted, which, as Mr. Van der Weyde had told them, was considerably too small. Photography had, to a great extent, cured painters of that fault, and there had always been some too great and too genuine to pander to fancy and fashion in that way; but at all events it was very common to paint heads and waists too small, and hands also; and an arrangement of this kind enabled the photographer to satisfy those who wanted rather a conventional ideal than a truthful representation. Again, it was said that mountains appeared too small and insignificant; that, being objects of interest, they filled the mind and gave the idea of being larger than they actually were. But if that were so, why should waists and heads, which were not objects without interest, be made smaller? In both cases it was simply a question of what would be most effective or pretty, not what was most in accordance with truth. Painters had been in the habit of flattering, it paid them to do so, and no doubt many sitters would be better pleased. If this plan enabled photographers to flatter vain women by making their heads and waists appear smaller than they were, no doubt it would be commercially successful, but do not let them lose their self-respect by flattering their sitters in word as well as action; telling them that these smaller heads or waists were in accordance with optical, or visual, or any other truth, when it was simply in accordance with a conventional ideal. Optical and visual truth were essentially one.

Professor C. Roberts-Austen, C.B., F.R.S., said that he had no knowledge of photography, but he did not like to let a paper of such extraordinary interest pass without a word. It seemed to him that the author had guarded himself against any charge of inaccuracy by saying that optical truth, as far as photography was concerned, was a merely mechanical operation. It had been known for a long time that our impressions were not to be trusted—that seeing was not believing—nor could they believe altogether what they only felt. If they crossed their fingers and rubbed their nose, they would feel quite certain they had two noses; and a sophisticator, if it was to be called so, was, in such cases, absolutely necessary His wife happened to be an artist, and he had heard her say, with reference to a figure, that it was not high enough, that it ought to be eight heads high, or whatever the number was. He did not like to think that what they had heard was mere sophistication. It seemed to him that the author had shown how, by taking thought, they might add cubits to their stature.

Mr. T. R. Dallmeyer said that it appeared to him that one of the remarks in the paper was a mere truism—viz., that photographic perspective and visual perspective were not the same. Photographic or optical perspective was a science, but the way in which they saw things was dependent on psychology, which was not a science, and he did not believe it ever would be. Although photographic perspective was a science, it did not correspond with what they saw in the physiological sense. He had been much interested in these experiments, though it could not be called anything but a clever device. The only case in which photographic perspective and psychology agreed were when the images were entirely on one plane, then they were identical. They knew that the best results in photography were when the whole image was as far as possible on one plane. Before this device (which would doubtless be largely employed for portraiture), it appeared to him that a man exercised his skill as a photographer in arranging the sitter in one plane wherever it was possible, and cases in which the feet or hands came forward were the exception. He was not an artist, but, from an artist's point of view, he should think that this flattering device was an exceedingly useful one, and would probably become very popular; but it was not at all true. He must insist on that, because he thought Mr. Van der Weyde rather misunderstood Captain Abney the other day. He welcomed, as they all did, any scientific application of an optical nature, but he felt quite certain that he did not mean to convey that the results thus obtained were of an order which could be classed as scientific. As to landscape, the only example shown was one copied from another photograph, a portion of which might be lengthened, or exaggerated, according to the psychological view of the individual, and it certainly looked very much better; but he did not see how this method would work in actual practice. If they took the case of a tree cutting the horizon, and applied this method to it, the middle of the tree would bulge out. There were only certain subjects on which the process could be used, and it appeared to him that an immense number of these correctors would be required to produce the desired effect in a landscape.

Mr. Van der Weyde said that there were two reasons why this method was valuable: one, because it enabled them to give a better suggestion of true proportion than an ordinary photograph would, if one part of the object came forward; and that was a solid, artistic reason. The others was that it enabled them to please their sitters. But these two reasons should not be mixed up. There was no reason to decry the whole thing because it might be abused. He remembered very well, in early youth, when looking at photographs of people he knew well, that it always struck him how large their heads looked The impression generally conveyed was not that conveyed by the photograph, and he contended that as a rule the head should be slightly diminished in order to give the natural impression. In taking a lady playing a violin, it was very difficult to avoid distortion, and an unnatural pose had to be adopted.

The Chairman said that they would all agree that they were indebted to Mr. Van der Weyde for one of the most interesting papers they had had on the subject of photography. With regard to visual truth, he had long had very great doubts whether there was such a thing at all. He was quite certain that if he and Mr. Van der Weyde both looked at the clock at the end of the room they would receive very different impressions: his short sight would only enable him to see a blur, where his friend would see the face distinctly. Visual truth, therefore, was a thing that no artist could attempt to arrive at. In the work to which he referred before there was no visual truth at all; it was a purely artistic work from beginning to end. He concluded by proposing a hearty vote of thanks to Mr. Van der Weyde.

The vote of thanks having been carried,

Mr. Van der Weyde, in acknowledging it, said that he agreed with much that Mr. Dallmeyer had said, but he could not agree with much that Mr. Debenham had advanced, and he thought, that gentleman had ignored portions of the paper which he (the speaker) considered were conclusive as to the necessity for an instrument of this kind. A picture should always give a suggestion of the impression on the brain, and if it did not do that it was not a picture, but merely an optically true photograph. This instrument helped one to do more, to make an optical representation of it; it gave a better suggestion of what they had seen than had hitherto been possible, especially in the case of portions of the figure which came forward.—*Read before the Society of Arts.*

PHILADELPHIA'S SHARE IN THE DEVELOPMENT OF PHOTOGRAPHY.

BY JULIUS F. SACHSE.

(*Continued from page* 295.)

TO Robert Cornelius, of Philadelphia, is due the honour of having produced the first successful portrait of any living person by the Daguerre process. This was accomplished in the yard back of his store and residence (old) 176, Chestnut Street, above Seventh (now number 710), in Philadelphia.

How Robert Cornelius, who was a lamp-maker and a metal-worker, became interested in Daguerre's invention, is best told in his own words to the speaker—viz.:

"Mr. Saxton, who was then connected with the United States Mint, had the opportunity of receiving an early notice of the manner in which Daguerre was operating He soon produced a picture from the second storey of the Mint—a view of chimneys and tops of houses. He was anxious to continue the experiment and called upon me, and showed his experiment, explained to me the manner of doing it, and desired me to prepare some plated metal to experiment with. With pleasure I complied with his request. It was our business to make a great variety of articles of plated metal. Very soon afterwards, I made in the factory a tin box, and bought from McAllister, 48, Chestnut Street, a lens about two inches in diameter, such as was used for opera purposes. With these instruments I made the first likeness of myself and another one of some of my children, in the open yard of my dwelling, sunlight bright upon us, and I am fully of the impression that I was the first to obtain a likeness of the human face."

In a subsequent communication in reference to this picture, Mr. Cornelius writes—viz.:

"You will notice the figure is not in the centre of the plate. The reason for it is, I was alone and ran in front of the camera after preparing it for the picture, and could not know until the picture was taken that I was not in the centre. It required some minutes with iodine to produce the effect."

This achievement of Robert Cornelius, a member of this Society, is all the greater when it is considered that at that time, in Europe, it was considered impossible to apply the Daguerrean process to the production of portraits; for, with the chemicals and apparatus there employed, no picture could be taken in less than about a quarter of an hour, and as the correctness of a portrait produced by this art depends upon perfect immobility during the whole sitting the mere idea of such an application of photography was looked upon as altogether absurd.

This statement will be found in the *Franklin Institute Journal*, vol. x., p. 50.

Unfortunately the exact date of this successful experiment at portraiture has not come down to us, nor is Mr. Cornelius able to recall it with certainty. That it was not long after Saxton's experiment is, however, proven by the fact that one of the pictures was shown by Robert Patterson, a director of the Mint, at the regular stated meeting of the American Philosophical Society, December 6th, 1839, and the fact is so recorded upon the minutes (*Proc. A. P. S.*, vol. i., p. 155).

It was not until a month later that the first French daguerreotype reached America. This was obtained in Paris by Mr. Henry Seybert, and sent to the Philosophical Society in Philadelphia, and was shown at the regular meeting, January 3rd, 1840 (*Proc. A. P. S.*, vol. i., p. 169).

A comparison with Saxton's early efforts showed that they were equal, if not superior, to the French specimen, while Cornelius' and Goddard's efforts were far in advance of the French production.

The month of December, 1839, was destined to prove a memorable one in the development of the heliographic art.

It was during this month that the most important improvement was made upon Daguerre's process. This was the application of bromine, as an accelerator, by Dr. Paul Beck Goddard, of Philadelphia. It was this discovery which solved the question of time exposure, perfecting Daguerre's process, and thereby making possible its universal application in the various arts and sciences.

The proof of Dr. Goddard's claim to priority in the use of bromine is to be found in the *Proceedings of the American Philosophical Society*, vol. iii., p. 180.

The experiments of Dr. Goddard, in December, 1839, resulted in the production of a perfect specimen by the use of bromine, and was subsequently shown at the Philosophical Society. It was during this series of experiments with bromine that Dr. Goddard succeeded in obtaining several good views instantaneously in the open air, which were the first instantaneous pictures ever made by any heliographic process.

The First Studio.—Spurred on by his success in experimental portraiture, Robert Cornelius, together with Dr. Goddard, devoted considerable time to heliographic experiments, and the application of the process to portraiture. These progressed so satisfactorily that early in the year 1840, Mr. Cornelius secured the second storey room in the building at the north-east corner of Eighth Street and Lodge Alley (now Jayne Street), above Chestnut. This was arranged exclusively for daguerrean portraiture, thus making it the first heliographic studio in the world.

The method employed to concentrate light upon the sitter consisted in a series of reflectors, set at different angles, together with the use of blue glass to screen the sitter. The time for a sitting averaged about one minute. It is an interesting fact that the first apparatus, such as the camera, plates, mats, coating boxes, &c., were all made by Mr. Cornelius personally. The lenses he obtained from McAllister, the Philadelphia optician.

In connection with this subject I have here a copy of the first successful studio picture, the father of the speaker, taken by Mr. Cornelius in his new establishment.

The original is a representative specimen of his skill and proficiency, and its perfect condition at the present day attests the permanency of his early efforts.

Considerable success attended Mr. Cornelius, a leading feature being an increase in the size of the image. Thus, on March 6th, 1840, we again find a notice of his progress chronicled in the *Proceedings of the Am. Philosophical Society*.

"Dr. Patterson exhibited some specimens of the heliographic art (daguerreotype) of a large size, executed by Mr. Robert Cornelius, of Philadelphia, and stated to the Society that Mr. Cornelius had succeeded in obtaining beautiful representations upon highly-polished silver plate." (*Proc. A. P. S.*, vol. i., p. 181.)

Mr. Cornelius' enterprise attracted much attention among the wealthy and scientific classes, and brought many sitters to the establishment.

An interesting item for the professional photographer of to-day who furnishes a dozen cabinets for one dollar, or who turns out thirty-six tintypes for a quarter, is, that so great was the rush for the daguerrean miniatures, as they were called, that prospective sitters had to be "booked" a week ahead, at five dollars for each sitting. Each received his day and hour, subject, of course, to sunshine. No sittings were attempted in cloudy weather.

About a year after the "atelier," at Eighth and Lodge Alley, was established, Mr. Cornelius removed his establishment to larger quarters on the south side of Market Street. His announcement in the *Public Ledger*, of July 1st, 1841, reads—viz.:

"*Daguerreotype Miniatures.*—R. Cornelius respectfully announces that he has resumed the taking of daguerreotype miniatures, and invites the public to call at his rooms, No. 270, Market Street" [now 810], "where specimens of the art can be seen. The recent improvements are such that miniatures can be made in the shade and without regard to the state of the weather."

The last positive record we have relating to Cornelius as a professional heliographer is the entry upon the minutes of the stated meeting of the American Philosophical Society, April 15th, 1842, stating:

"Mr. G. W. Smith presented some daguerreotype portraits made by Mr. Cornelius by an improved process, an important part of which was the greater polish given to the plate, and the absence of cross lines."

(*To be continued.*)

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, MAY 26, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

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ABOUT SOME PHOTOGRAPHERS.

AMONG photographers there are to be found, as among all other classes, plenty of "groovy" men. (This particular adjective has not yet come within the ken of the dictionary compiler, but it is such a good and expressive word for the man who never moves out of the particular slot into which fate has dropped him, that its admission into the vocabulary is merely a matter of time.) The groovy photographers are firm believers in the proverb which teaches that a rolling stone does not get decorated with moss. They remain as they were twenty years ago, and it is a matter for wonder that some of them have not preferred to keep to the wet collodion plate rather than adopt gelatine. They sit still, and gather moss day by day, until it chokes them.

We were led into this train of thought lately through a little episode which occurred when enjoying the hospitality of friends far away from London, and out of reach of the camera and everything pertaining to photography. Our host had an old print from which he wanted two copies made, one photograph to be of whole-plate size on paper, and the other a lantern slide of the standard dimensions. The work was given to the local photographer to do, and he made a sad mess of both pictures. Neither one nor the other was of any use, and the work had subsequently to be redone in London. The local man was good at portraiture, as many examples testified, but when he was called upon to do something that he was not quite accustomed to, he failed—failed because he was "groovy," and quite unprepared to photograph anything that had not a round knob at the top which could be shoved into a head-rest.

The first difficulty which assails the "groovy" man is the absence of all appliances in his studio except those which are required for the usual routine of studio portraiture. If he is called upon, as in the case just cited, to copy a picture, or anything of the kind, he has, in the first place, no means of supporting it so that it shall be opposite to and exactly square with the camera; and, in the second place, he has no lens which will do the work comfortably and properly. In these days of endless applications of photography no worker should allow himself to lapse into this state of unpreparedness, for he may be required at any moment to step out of the beaten track. There should be in every studio, besides the regulation camera stand, another kind of stand arranged for copying purposes. Details of convenient forms of stands for this purpose have been published from time to time—some rather too elaborate for home construction, and some a little too much the other way to be of much use. The basis of such a stand may conveniently be a firm table, with a vertical board at one end, and a couple of laths, between which the camera will easily slide, tacked on to its upper surface. Upon the vertical board is fixed the picture to be copied, and the size of the copy is regulated by the movement of the camera between the laths.

A photographer who is also a mechanic used to handling tools will not content himself with such a simple arrangement as this, but will make a special stand, with a carriage for his camera which has a lateral as well as a to-and-fro motion; and he will probably see the utility of giving the copying-board a vertical movement, so that the copy can be focussed and centred on the plate with ease and certainty. A further useful elaboration will be to crown the little railway with a tunnel, and to replace the copying-board by a frame to hold any negative from which a transparency is required, or from which a reduction or enlargement has to be made. Armed with such a device, the photographer will be ready to undertake work which without it he would be powerless to attempt, or could only attempt at great inconvenience and risk of failure.

We are convinced that many of those who are crying out about bad trade are men of the "groovy" type, who refuse to move with the times and to take advantage of the many fresh openings that modern photography affords. No one will deny the fact that the camera is now more generally employed in the various arts and crafts than ever it was before, and if in certain places it is found that persons do not hunger after photographic portraiture as once they did, the photographer must accept the situation and see whether the locality will not find other descriptions of work for his camera to do. In one respect photographers are more fortunate than members of any other craft; we mean in the circumstance that there are no trade secrets. A new process is no sooner brought forward than it is experimented with by experts, who report upon its merits or disadvantages, as the case may be, and dozens of good workers are only too ready to publish their experiences with it. Take as an example of what we are advancing the various reproduction processes, collotype, zincography, and all the rest. They are absolutely free for anyone to practice, and, in a small way, can be undertaken at slight expense. The photographer who cries for more work would do worse than to turn his attention in this direction; but too often, we fear, while busy gathering moss, the other man steps in, and reaps the reward of his enterprise.

COMPOSITE HELIOCHROMY.

ON Wednesday last week, in the Theatre of the Society of Arts, Mr. Frederick E. Ives, the well-known experimenter of Philadelphia, delivered an exceedingly interesting lecture with the above title.

After asking indulgence for the temporary weakness of his voice, Mr. Ives commenced his lecture with a brief summary of what had been done by him with regard to colour photography prior to his appearance before the Society of Arts last year. He then said that, although the effects given by the instrument which he had invented (the heliochromoscope) were truly astonishing, he estimates that it may take another year to carry out all the experiments and make all the measurements necessary to enable him to finally demonstrate the capabilities and limitations of the process. He then went on to explain that his own process of composite heliochromy consists first in the production of a triple photograph or chromogram, to represent the effect of light from the object upon the three separate fundamental colour-sensations; and, second, in the blending of the three images into one, either optically, by means of the triple lantern or heliochromoscope, or by the superposition of three transparent colour prints. He placed very great importance upon the fact—upon which too much stress can hardly be laid, for herein lies the secret of Mr. Ives' great success—that, although the three fundamental colour sensations are red, green, and blue-violet, the three images of the triple photograph are not made through screens of these colours, nor by the action of red, green, and blue-violet rays; but each image is made by the joint action of all the rays that have power to excite the respective fundamental colour sensation. Thus, not only do the red rays, but those of orange, yellow, and yellow-green also, excite the fundamental red sensation, the orange rays affecting it even more powerfully than the pure red. To truly represent the effect upon the red sensation, therefore, the picture must be made by the action of all these rays in their due proportion. The photogram for each of the other colours must be made according to the same rule; but, when the triple images are blended into one by means of the heliochromoscope or triple lantern, each is illuminated by light of the pure fundamental colour only, the result being a faithful reproduction of the object photographed in all its subtleties of light, shade, and colouring.

Mr. Ives explained that whereas last year his projections were made with limelight, which was very unsatisfactory, he was this year provided with a lantern adapted to the electric light. He indicated that the light from a single arc lamp, after being collected by a condenser in the ordinary way, is subdivided into three portions by a system of mirrors, some of which are transparent, as in the heliochromoscope camera, to be described later on. In the path of each division of the beam of light is placed a smaller condenser and a colour-screen; in front of these comes the chromogram, or triple photograph, and then the objectives by which the images are projected and superposed.

The hall was then darkened, and, the lecturer stepping to the lantern, showed us, first, that white light was produced by superposing the three colours on the screen. The disc thus obtained was indeed so nearly pure white that one could hardly believe it was formed by the mixture of brilliant colours, until the lecturer held his hand in front of the screen, when the multifarious and many-hued shadows thus formed afforded a very striking proof. He then intercepted the blue rays, and demonstrated the fact that the red and green lights mix to produce yellow, and then that the addition of blue to the yellow makes, not green, but white. Mr. Ives then inserted in the lantern one of his chromograms, representing a bowl of fruit, and the effect was truly marvellous all the different colours and shades being reproduced with wonderful fidelity. We were greatly struck by the rendering of the bloom on a large bunch of grapes; it was absolutely startling. The next chromogram represented a cigar box with a tobacco jar on the top, the colour of the cedar-wood and of the labels on the box being most accurately reproduced. In these pictures there was no indication of the manner in which the colours were produced, the registering of the component parts being so perfect, that it seemed as though we were looking at a very accurate painting full of detail, illuminated by white light from the lantern. Mr. Ives next showed a photo-chromograph, taken from an unfinished painting of a girl with a rather pale face, and he explained that this paleness was due to slight under exposure of the original negatives.

The next example was an ordinary cabinet portrait, which appeared just the colour of an albumen print. Mr. Ives shifted the slide so as to throw it out of register, and we then saw that the familiar purple colour was a composite of all the three colours in the lantern in different proportions. We were next shown a chromogram taken from a painting—a child in a wood—which was not so good as the previous one; of course the fault may have been in the original. Mr. Ives next showed a bunch of wild flowers, the colours of which were very brilliant, and, as far as we could judge, accurate. Following this were shown several views in Yellowstone Park, extinct volcano craters, &c., which had to be registered separately on the screen, as the camera with which they were taken did not register all alike. One of these, in particular, was very wonderful, a view of the volcanic rocks at the Golden Gate. The prevailing colour was, of course, golden, but the yellow rocks exhibited many beautiful irridescent colours as well, which could hardly have been produced by the most skilful of lantern-slide painters. Mr. Ives finished his series of pictures with a representation of a jug of wild flowers, gathered in Yellowstone Park, which, being unfamiliar, were very interesting; but for the same reason we were, of course, unable to appreciate the accuracy of their colour.

Mr. Ives now showed a diagram of his heliochromoscope, in which a system of silvered and transparent mirrors was made to combine the three images, so that they could be viewed through one eyepiece. The exact positions of these mirrors had to be most accurately calculated, for not only must the image of each section of the chromogram occupy the same position relatively to the eye, but each must be equidistant from it, in order to insure perfect blending. After explaining at length the working of this instrument, Mr. Ives went on to say that for taking the chromograms he sometimes used a converted heliochromoscope, the eye-piece serving as an objective; that is to say, he substituted *selective* colour-screens for the *pure*, and made arrangements for the *red* light to be many times brighter than the others, on account of the non-sensitiveness of the plates to that colour. This makes the most compact form of camera, but necessitates such a long exposure—up to ten minutes on well-lighted landscapes, with ordinary isochromatic plates—that it is sometimes placed aside in favour of another in which three separate objectives are used, for which an exposure under similar conditions of thirty seconds is sufficient.

The lecturer then considered at length the defects of the instrument as a means of reproducing the colours of Nature, and he afterwards summed up his remarks as follows:—

"Under favourable conditions, the photographic defects which I have mentioned are so small as to pass unnoticed by the ordinary observer, to whom the reproduction seems perfection in every respect; under unfavourable conditions, the results might be quite as unsatisfactory as are sometimes the results in monochrome photography. To look for a nearer approach to perfection would be unreasonable in the present state of photographic science."

In talking of some of the irritating difficulties which he had experienced and finally overcome, Mr. Ives made a very interesting communication. He said:—"With certain developers—hydroquinone being one—the image of the blue-violet sensation commences to develop first, and goes on almost to completion long before the detail is all out in the image of the red sensation, even though the latter may appear relatively over-exposed after the development is fully carried out. Under such circumstances, the relation between the two images will vary with the time the plate is left in the developer, and it is difficult to insure accuracy. This difficulty was substantially overcome by using the eikonogen developer, and seems to have entirely disappeared with rodinal development."

He also told us that, in spite of all precautions, his negatives at first developed considerably denser towards the edges than in the middle of the plate, the result being great unevenness of colour. It proved to be due to access of air, during development, to the outer edges of the plate, caused by the dish containing a rather small quantity of fluid. The cure was obvious. Mr. Ives supposed that the probable reason that this unevenness has not been noticed in monochrome photography is that the centre of the plate usually receives so much more light in the centre than at the edges, that the effect is neutralised.

Mr. Ives considers that plates should be backed for composite heliochromy, or a red halo will result, owing to halation in the image of the red sensation.

In conclusion, Mr. Ives said:—"Objection has been made to the use of the terms 'heliochromy,' 'photochromy,' and 'colour photography,' as applied to this process of colour reproduction. It has been said that, because colours can be produced directly by the action of light upon certain sensitive surfaces, these terms should be restricted to processes of that character. It was to meet this objection that I named the process 'composite heliochromy.' If a better descriptive name can be suggested, I will readily adopt it. Perhaps the heliochromoscope would be more properly called a photochromoscope, a name which I like better, but have not adopted, because inventors of devices of a very different character have already been quarrelling about the right to use it."

An interesting discussion followed, during which several questions were asked, and replied to in a very lucid manner by Mr. Ives, who evidently does not wish to make a secret of anything in connection with his process.

Captain Abney, as Chairman, complimented Mr. Ives on his very marked success. He considered it an interesting and valuable process, based upon truly scientific principles. Few men have taken the trouble to discover the true fundamental colours, and to find and measure their situations on the spectrum, as Mr. Ives has. He referred to the fact that the colour screens used in this process were quite different for taking the chromograms to those used for viewing them, and considered that in this lies the marked superiority of Mr. Ives' results over others of a similar nature. He did not think that a process by which colour seen to be red by reflected light incident at a certain angle, and green at another angle, could ever be of much practical value. He remarked that

Mr. Ives' experience with the different developers was exceedingly interesting—namely, that impressions produced by the blue-violet sensation would, with certain reducing agents, develop more rapidly than those produced by other colours. He remarked on the great ingenuity and skill with which the heliochromoscope had been thought out and constructed, especially the clever expedient of slightly inclining the two surfaces of a plain mirror so as to obviate the troublesome double reflection. Finally, he thought that the public would soon not be at all contented with the slides that lecturers now placed before them, either plain or hand-coloured, but would require chromographs produced by Mr. Ives' method to illustrate all lectures.

A very hearty vote of thanks was passed to Mr. Ives, and with that the meeting broke up.

PHOTOGRAPHY IN FRANCE.

BY LEON VIDAL.

DIRECT PHOTOGRAPHY OF COLOURS—ORTHOCHROMATISM APPLIED TO PHOTO-MICROGRAPHY—FETE OF THE PHOTOGRAPHIC UNION — FIRST SESSION OF THE NATIONAL UNION OF PHOTOGRAPHY AT HAVRE—DEMONSTRATION OF THE IMPERATIVE NECESSITY FOR PHOTOGRAPHIC INSTRUCTION—ADJUSTABLE CAMERA STANDS—MOVEMENTS IN A LIQUID REGISTERED BY THE PHOTO-CHRONOGRAPH—EDISON'S KINEGRAPH—DIFFRACTION GRATINGS REPRODUCED PHOTOGRAPHICALLY BY MONS. IZARU—NEW PHOTOMETER.

SINCE the last meeting of the French Society, Mons. Monpillard has made a very interesting demonstration of the utility of orthochromatism applied to micrography. By the aid of comparative projections, he has shown the essential differences which characterise the various reproductions of the same subjects, obtained upon ordinary plates and upon orthochromatic plates.

It would certainly seem that such demonstrations might be somewhat superfluous, so much being already known of the results of orthochromatism; nevertheless, Mons. Monpillard's observations are still very seasonable, there being so large a number of persons opposed to the employment of this method, the only suitable one for the reproduction of polychromatic images.

From the scientific point of view, the advantages of preparations capable of reproducing colours are no less great than from the artistic. The question is by no means a new one; the only matter of surprise is, that the subject should now be regarded as a new idea.

At the same meeting, Mons. Louis Lumière showed some recent pictures in colours obtained by him and his brother Auguste, directly by the method of Mons. Lippmann.

The great characteristic of these projected pictures is the faithful representation of landscapes. The effect is extraordinary on account of the admirable reproduction of the colours of Nature. The blue of the sky, the greens in their various tints and gradations, with all the most delicate greys and whites—all is here depicted with unrivalled exactitude.

Mons. Louis Lumière has indicated the method by which these remarkable results have been obtained, and the following description of his *modus operandi* will be interesting to all who aspire to follow in his steps.

In order to obtain the sensitive emulsion, the following solutions must be employed :—

A.—	Distilled water	460	parts.
	Gelatine	20	,,
B.—	Distilled water	28	,,
	Bromide of potassium	2·3	,,
C.—	Distilled water	28	,,
	Nitrate of silver	3	,,

The half of Solution A must be added to solution C, then the other half of the former must be added to B. These two gelatinous solutions must then be mixed by pouring the liquid containing the nitrate of silver into that containing the bromide of potassium. A *sensitiser* of the appropriate colour must next be added, such as cyanine, violet of methyle, erythrosine, &c. The emulsion is then filtered and coated upon plates. This may be done with advantage by rotary movement, the temperature of the solution not exceeding 40°. The *emulsion* having set, the plates must be immersed for a very short time in alcohol, and lastly be washed in running water. The emulsion being very thin, the washing need only take a very short time. By this means the plates are made perfectly transparent. After being sufficiently washed, the plates are put to dry; then, before being used, are treated for two minutes with the following solution :—

Water	200	parts.
Nitrate of silver	1	,,
Acetic acid	1	,,

They are again dried, and are then ready for use. The following solution must be used for development :—

A.—	Water	800	parts.
	Bromide of potassium	18	,,
	Liquid ammonia, 0·988	28	,,
B.—	Water	100	,,
	Pyrogallic acid	6	,,

To mix, take of—

A.	50	parts.
B.	25	drops.

The strength of the ammonia is of the very greatest importance, for any variation, however slight, in the proportions quoted above would be disastrous to the brilliancy of the colours. After development, the plate must be washed, fixed by an immersion of from ten to fifteen seconds in a 5 per cent. solution of cyanide of potassium, and lastly dried.

In order to arrest the action of the ultra-violet radiations, and to diminish that of blue and violet radiations, there must be interposed between the object and the sensitive plate a tank with parallel sides containing a suitable yellow solution — Victoria yellow, uranine, or, better still, primuline.

It may here be remarked that the employment of this method necessitates the utmost care, precision, and delicacy, without which it would be quite impossible to produce any satisfactory effect.

Thanks to the truly astonishing results obtained by MM. Lumière, the fact is now satisfactorily established of the possibility of reproducing composite colours, a striking confirmation of the splendid discovery of Mons. Lippmann. It now only remains to render the work of the operator as easy as possible, and, above all, to find a means by which these pictures may be rendered visible under all circumstances. There is no doubt that this will eventually be done.

The *soirée* organised in aid of the Benevolent Society in connection with the Photographic Union has been a great success. It augurs well for the future, such manifestations being the surest means of providing the sinews of war.

The first session of the National Union of the Photographic Societies of France has just taken place at Havre. The end sought is to establish closer bonds of union between photographers. We will take note in our next communication of the salient points of this reunion.

It is very probable that the demand will be reiterated for the organisation of some scheme of photographic instruction in France. This instruction should entail a much more general and scientific study of photography than has as yet been accorded to it. It is easy to see, in the tardy reception of orthochromatism, a proof of the ignorance of the greater number of photographers.

It appears that portable stands, which admit of photographing in all directions, are much in demand, for two makers, Mons. Gilles and Mons. Berteil, have presented to us stands of which the tops are so constructed as to take any position desired, in order to photograph the heavens or the earth.

Mons. Marey is about to publish a very interesting new work upon the application of photo-chronography to registering the various movements of a liquid. His very ingenious idea presents this study under the best possible conditions.

Edison's Kinegraph is much talked about just now. The great inventor is occupied in perfecting this combination of photo-chronography and electricity, which will before long become an accomplished fact. If his ideas should be realised, what a curious thing it will be to be able not only to converse at a distance, but also to *see* one's interlocutor!

Mons. Izaru has succeeded in reproducing photographically a diffraction grating. Thanks to this method a network of this sort costs next to nothing, and the decomposition of light is quite complete.

To the Society of Physics Mons. E. Mesnard has presented a new photometer, of which the principle is as follows:—If one end of a small, hollow glass tube is exposed to the light, on examining the other extremity in a dark room a luminous circle becomes visible, more or less brilliant in proportion to the degree of brilliancy of the incidental light itself. It is possible that this principle might be utilised for the creation of a photographic photometer.

* * *

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION.

DEPARTMENT OF ART.

PRELIMINARY ADDRESS OF THE COMMITTEE OF THE WORLD'S CONGRESS AUXILIARY ON A CONGRESS OF PHOTOGRAPHERS.

THE World's Columbian Exposition of 1893 is intended to commemorate the progress of civilisation, and be an incentive to further development, not only by displaying the best products of men's thoughts, as shown in material things, but also by bringing together for conference, in a series of congresses, the leading thinkers, workers, and artists of the world. The World's Congress Auxiliary has been organised with the approval and support of the Exposition authorities, and of the Congress of the United States, to have general charge of these congresses. Audience rooms, sufficient in number and capacity, will be provided by the Directory of the Exposition.

Among the congresses of the Columbian Exposition of 1893, that devoted to photography should rank high and be, as it undoubtedly will, a permanent benefit to the civilised nations of the earth. The advancement that has been made in photography, and the processes dependent upon it, within the last twenty years has astonished the artists and scientists of the world. By its aid, the astronomer has discovered countless stars and remodelled the map of the starry heavens. It is extensively used in almost every department of art, literature, and science. Its future possibilities are too great for anyone to estimate.

It is the design of the Committee to have men and women, who have become distinguished in the various departments of the photographic art, and the processes dependent upon it, deliver papers before the Photographic Congresses which shall contain their best thought, and, after well-regulated discussions, shall become the property of the World's Congress Auxiliary, and, if deemed worthy, be published in the Encyclopedia of Proceedings.

The following are suggested as some of the topics which may appropriately engage the attention of the Photographic Congress:—

The History and Development of Photography.
The Present and Future Possibilities of Photography.
Emulsion Photography.
Photographic Chemistry.
Microscopic Photography.
Portrait Photography.
The Production of Photographs in Natural Colours.
Photographic Apparatus.
Landscape Photography.
Photographic Mechanical Processes.
The Best, Cheapest, and most Rapid Photographic Process for Illustrating Books, Newspapers, &c.
The Latent Image and its Development.

Photo-Legal Photography.
Photo-Medical Photography.
Astronomical Photography.
Amateur Photography.
Photographic Optics.
Orthochromatic Photography.
Carbon Printing.
Silver Printing.
Platinum Printing.
Photography as an Aid to Education.
Photography by Artificial Light.
Aërial Photography.
Submarine Photography.
Instantaneous Photography.

The Congress of Photographers will be held in Chicago some time during the month of August, 1893.

The Committee in charge of the arrangements for the various meetings of the Photographic Congress must, of necessity, be composed of persons resident in or near Chicago, to enable them to attend the meetings of the Committee. But to give the Auxiliary the benefit of the advice and counsel of persons skilled in the Art-Science of Photography throughout the United States and the other countries of the world, and to make the Photographic Congress representative of the important interests and topics to be considered, Advisory Councils of the Photographic Congress have been, and will be, appointed from time to time.

These Advisory Councils will be composed of persons skilled in this department of Art-Science throughout the world.

It is desired that photographic societies and conventions, wherever held, shall send to this Committee the names of such persons as they consider best fitted to represent them, either by the presentation of papers for the Congress, or by taking part in its discussions.

The Committee also wishes to receive suggestions as to methods of work, topics for discussion, and suitable persons to treat special subjects.

The Advisory and Honorary Members of the Congress are particularly requested to interest themselves in this direction, and to make such suggestions as they may deem proper. Photographic periodicals and individuals to whom this address is sent are also invited to make such suggestions and recommendations at the earliest possible moment, to the end that they may be utilised by the Committee in forming the final plans in pursuance of which such Photographic Congresses will be held.

James B. Bradwell (Chairman); Gayton A. Douglass (Vice-Chairman); C. Gentile; Max Platz; M. J. Steffens; Alex. Hesler; W. J. Root; Bernhard Eichelmann; S. W. Burnham; Mrs. N. Grey Bartlett (Chairman Women's Committee); Mrs. D. M. Stevenson (Vice-Chairman); Mrs. A. C. McClurg; Miss Grace Temple (Committee).

Note.—Inquiries and communications, in relation to the proposed Photographic Congress, may be addressed to James B. Bradwell (Chairman of the Committee of the World's Congress Auxiliary on a Congress of Photographers), Chicago, Ill., U.S.A.

CORRESPONDENCE.

AFFILIATION OF PHOTOGRAPHIC SOCIETIES—PROPOSED CONFERENCE OF JUDGES.

Sir,—At the meeting of the delegates of the above, held on March 24th last, it was resolved to invite to a conference those gentlemen who have most frequently acted as judges at recent open photographic exhibitions, to agree upon lines of action to be followed in judging, and to offer suggestions for the guidance of societies with regard to exhibitions.

I am directed to inform you that, in accordance with the above resolution, an invitation has been sent to thirty-eight of the best known judges; but, as some names may have unintentionally been overlooked, the committee will be glad if you will make it known that any gentleman who has acted at least four times at open exhibitions will be welcome to join in the deliberations of the Conference.

The meeting will be held during the month of June, and due notice will be given of its date and place.

R. Child Bayley, Secretary to the Affiliation.
50, Great Russell Street, London, W.C.

THE DUDLEY GALLERY EXHIBITION.

Sir,—As chairman of the organising committee of the Exhibition, or Salon, of Photographic Pictures to be held at the Dudley Gallery, next October, may I say a word to correct the impression that there is intention to clash with the usual exhibition of the Photographic Society? The same reason which actuates the Photographic Society in selecting the autumn compels us to take about the same period, and that reason is the difficulty of obtaining a suitable gallery at any other season.

We certainly intend to have the best possible picture exhibition, but not to intrench on the usual lines of the Photographic Society, nor in any way to form opposition. Assurance on these points may be gained by a reference to the influential list of our committee, and, further, it may be pointed out that, with one exception, all the judges at the Photographic Society's Exhibition are also prominent members of the Salon Organisation.

The two exhibitions will probably be complementary, and even mutually helpful, by taking place at the same time.

George Davison.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Application for Letters Patent.

9,499. Alfred Thomas Davey, 12, Grove Terrace, Highgate Road, London, "Improved Hand-Camera, by the use of hexagonal box or drum in interior."—*12th May*, 1893.

Specification Published.

8,503. *5th May*, 1892.—"Photographers' Roll Holders." D. Roy, 6, Holyrood Place, Plymouth, Devon.

Consists in providing that the shutter, when replaced after exposure of a length of film, is locked until a fresh length of film has been unwound from the feed-roller.

Locking and unlocking are effected by means of a lever catch pivotted to the body of the roll-holder, and acted upon by a spring. This lever catch is shaped at its outer end to form a wedge-shaped hook, which, when the shutter is locked, engages with a fixed stop provided on the shutter. When a proper length of film has been unwound from the feed-roller, an arm attached to the winding indicator passes under a lug formed on the lever aforesaid, and the latter is thereby raised, causing the catch end to become clear of the stop on the shutter, thus unlocking the shutter.

In replacing the shutter, after exposure of the film, the hooked end of the lever is acted upon by a tongue pivotted to the shutter, and by this means the lever is turned on its pivot to a sufficient degree to withdraw the arm aforesaid out of engagement with the lug, the lever catch then falling and re-engaging with the fixed stop on the shutter. The latter is now locked, and is not again free to be withdrawn until a fresh length of film has been unwound from the feed-roller.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

APPARATUS.

Groom's patent "Bromide Lamp" is a very convenient dark-room appliance which has just been introduced by Messrs. Marion & Co., of Soho Square. Its purpose is to furnish yellow, red, or white light at the will of the operator, and, as its name implies, it is intended chiefly as an aid to printing on bromide paper. It is obvious that it will serve equally well for lantern slides and transparencies. The burner is of special form, and so constructed that it will burn mineral oil without the necessity for using a chimney, and it is fitted with a reflector which ensures a maximum of illumination.

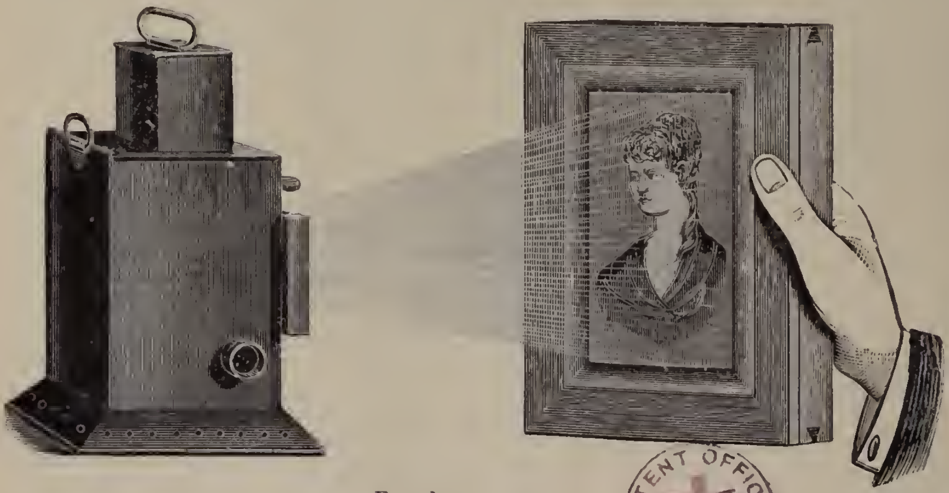

Fig. 1.

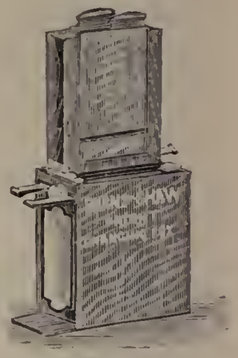

Fig. 4.

PATENT OFFICE

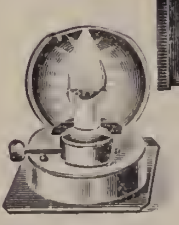

Fig. 2.

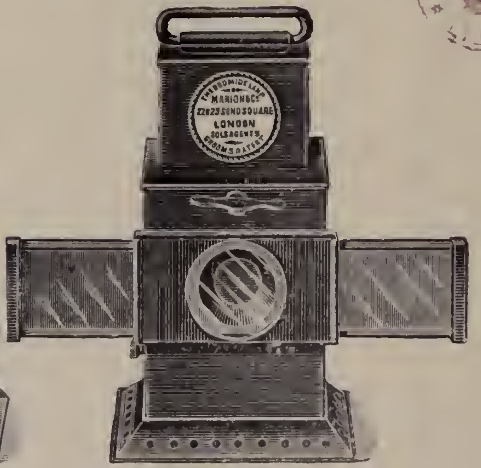

Fig. 3.

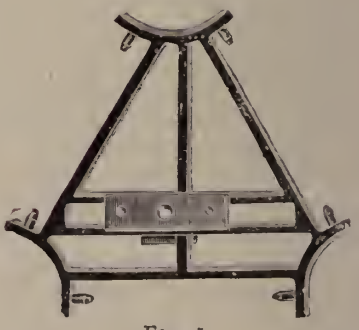

Fig. 5.

The manner in which this useful form of lamp is employed for contact printing is fully demonstrated in Fig. 1, and its various parts are shown in detail in Figs. 2 and 3.

The Burns-Shaw changing box and a new form of tripod-head, Figs. 4 and 5 (made by the same firm), were shown at the recent Exhibition at Birmingham. The changing box is of clever construction and contains a dozen plates, which are held in pairs in metal sheaths, each pair of plates being back to back. By an ingenious arrangement each pair in turn is transferred into the double-back which fits the camera. Changing boxes are somewhat out of date now, for they are necessarily heavy compared with film-carrying devices, but this one is certainly good of its kind.

The novel feature in the tripod-head (Fig. 5) is the slot and sliding-piece, which allows the camera to be shifted from side to side, thus rendering a single instrument capable of being used for stereoscopic pictures.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

May 19th.—The chair was occupied by Mr. C. H. OAKDEN.

Messrs. B. J. EDWARDS showed a film negative which had been kept printing for over five months without injury, having been coated with a special varnish (samples of which were distributed amongst the members) made by that firm, and suited either for films or plates.

A question from the box—What is astigmatism?—was referred by the Chairman to Mr. W. E. DEBENHAM, who replied that it was the bringing to focus of oblique rays on different planes by different sections of the lens.

Mr. R. BECKETT showed a gelatine print which had slightly darkened by exposure to light since it was finished. The change was not great, but was distinctly visible on comparing the exposed parts with the covered margin.

This was the last lantern night of the season, and Mr. COOKE showed some slides of various places in England, whilst Mr. T. A. FRESHWATER exhibited a very interesting series of views of the Tower of London.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, held Tuesday, May 16th.—Mr. R. BECKETT in the Chair.

FROM the question box :—"Wanted, a cure for pinholes."

The CHAIRMAN gave a description of pinholes as absence of film and silver, dust, air-bells, and fragments of glass.

Mr. HENSLER said he used a deep dish, and gave the plate a sharp knock on the side when developing.

Mr. S. J. BECKETT said Indian ink was about the best thing to use if pinholes were caused.

Mr. HENSLER could not dissolve the metabisulphite of soda as recommended by Mr. Dresser.

Messrs. NUNN and FENTON JONES had found no difficulty in doing so.

Mr. MOORE asked how to clear a negative from green and red fog.

Mr. SODEAU said Captain Abney recommended to convert the whole of the silver into its haloid condition and redevelop. Bromine water would convert, or ferric chloride. The conversion is to a grey fog, which does not matter much.

Mr. T. H. SMITH asked cause and cure for irridescent marginal stains on plates. ,Methylated spirit on wash leather (to rub on plate) will remove it easily.

Mr. W. FENTON JONES then proceeded to open the discussion on Plates *v.* Films. He spoke of great portability in films and their use for carbon work—advantages over plates —good for clouds, as they can print either way and are said to be free from halation. On the other hand, one thing which had done much to retard the progress was faulty emulsions lightning marks, tendency to curl when developing. Incidentally, he said, Mr. Dresser had overcome this by the introduction into his developing tray of a square, heavy framing, which rested on the rebate and caused films to lie flat.

A question that occurred was, when enlarging will films stand heat?

Mr. SODEAU explained an Eastman roll-holder, and said he rather favoured films. Had easily worked his. Said the films were well coated, and, by wetting his dish first, easily got them to lie flat.

Mr. HENSLER had taken cut films to New Zealand and found them a great advantage.

Mr. A. BARKER had some good films, but others were bad.

Mr. T. HOUGHTON used them in the Frena with good results, but some bits of film had at times blistered or floated off.

Mr. GOSLING asked, were films advisable for a beginner?

Mr. S. J. BECKETT said no, and generally objected to films. Had 33⅓ per cent. failures on films to 5 of plates.

Mr. POULSON said in larger sizes there was a danger of buckling.

Mr. W. FENTON JONES said he had found films sometimes thin, and gave, as a test for thinly-coated plates, the holding of one before the flame of gas, and if the flame could be seen through it, obviously they were thin.

The CHAIRMAN said films did not prevent halation entirely.

BRIXTON AND CLAPHAM CAMERA CLUB.

Ordinary Meeting, held Tuesday, May 16th, at 8 p.m.—The PRESIDENT (Dr. J. Reynolds, F.R.G.S.) in the Chair.

AFTER the confirmation of the minutes of the previous meeting, and the election of three new members, the President called upon Mr. W. THOMAS to read his paper on "A Photographic Picture, and Some Notes on its Production.' The paper, which was an exceedingly interesting one, dealt fully with composition, light and shade, balance, printing in clouds, printing processes, use of stops, mounting and framing. The lecturer's remarks were illustrated by numerous specimen pictures and blackboard illustrations. Mr. Thomas himself used cold-bath platinotype paper for his pictures, and strongly recommended its adoption by his hearers, as being exceedingly simple to use and beautiful in its results. He advised members to lay in a large stock of cloud negatives, and said that great care should be taken when printing in clouds to see that the clouds were lighted in the same manner as the landscape itself. Considerable discussion took place at the conclusion of the paper, and, in answer to a request, Mr. Thomas promised to take the members out for a practical lesson in the fields, in order that they might put his principles into practice under his supervision.

A communication from the Photographic Society of Great Britain was ordered to stand over until the next meeting (June 6th), when Mr. S. H. FRY will give a demonstration on the Sandell plate. Visitors are cordially invited.

PUTNEY PHOTOGRAPHIC SOCIETY.

THIS Society held its first summer outing on Saturday, the 13th inst., under the leadership of the hon. secs., Messrs. Gorin and Zachariasen. The members travelled to Woking, and from there proceeded along the Basingstoke Canal in the direction of Byfleet and the Wey Navigation. As there was a bright diffused light, a number of good negatives was obtained of the beautiful scenery along the route, additional interest being given by the grouping of a few children, whom the leaders had previously engaged to meet the party. There was a very good attendance of members, who, after their labours, thoroughly appreciated the good things set before them at "Ye Olde White Hart" inn, at Newhaw.

ASHTON-UNDER-LYNE PHOTOGRAPHIC SOCIETY.

ON Monday, Tuesday, Wednesday, and Thursday, May 12th to 15th, the above Society held an exhibition of over one hundred photographs of the land of the Broads. The views were lent by the Great Eastern Railway Company. The photographs were inspected by a large number of members and friends with very great interest, and many expressed their desire to visit the places depicted. Many also said they should visit Norfolk with the camera, so the Society may expect to see more views before very long from that delightful county.

Gosport Photographic Society.

On Tuesday evening, the 16th inst., Mr. **Belton**, of the Paget Prize Plate Company, London, gave a very interesting and instructive demonstration on "Printing-out Opals and Plates." The lecturer dealt with his subject in a thoroughly exhaustive manner, and the specimens handed round were much admired.

On the motion of Mr. W. B. **Smith**, seconded by Mr. T. E. **Williams**, a hearty vote of thanks was accorded Mr. Belton for his attendance.

At a Council meeting held previously, the Rev. E. Paske-Smith, C.F., was elected to a vacancy on the Council, and Mr. Reginald E. Green was chosen joint hon. sec.

Photographic Society of Japan.

A regular meeting of the above-mentioned Society was held at the rooms of the Geographical Society [Chigaku-Kiokai] Nishikonya-cho, Kiobashi, Tokyo, beginning at 5 p.m., on Friday, the 14th April, Mr. **Edmund R. Holmes** in the chair.

The following gentlemen were unanimously elected members of the Society :—Messrs. W. Silver Hall, N. Kasuga, S. Kikkawa, W. B. Mason, M. Naito, K. Narahara, and K. Tatsuke.

Mr. T. **Kiyokawa** presented samples of blue printing paper, of his own manufacture, to the Society, and these were distributed amongst members for trial.

Mr. B. **Munster** showed further examples of the work of J. Carpenter's opera-glass camera. These were very beautiful and were greatly admired.

Mr. S. **Nonogaki** sent a couple of pinhole photographs. Mr. Nonogaki was not present, but it was understood, from a letter that he had sent, that he had made the pinhole plates himself, having read the communication to the Society on the subject by Mr. J. Favre-Brandt. The definition of the photographs shown was so good that it was hardly possible to believe that they had not been taken by a lens ; but in looking at them very carefully the characteristic pinhole "softness" could be seen.

Mr. W. K. **Burton** and Mr. K. **Arito** showed a sensitometer they had been using in an investigation with regard to the power of compensating, in development, for variation in exposure. Long strips cut from dry plates were exposed in this sensitometer to direct light, were afterward longitudinally cut in two, and the two halves were shown, proving the power of compensating for exposures varying as several hundred to one.

A set of photographs, all of the same landscape, was shown. The exposures of the negatives, all on the same kind of plate, had been 1½, 3, 6, 12, 24, 28, 96, and 192 seconds. Members were asked if they could distinguish the prints from the negatives that had had the longer exposures, from the negatives that had had the shorter exposures. They were utterly unable to do so.

North Middlesex Photographic Society.

The fourth of the series of elementary technical classes given by the above Society was held on Wednesday, the 10th inst., the subject being "Intensification and Reduction of Negatives," by Mr. J. **McIntosh**. Several of the negatives brought by those interested were operated on with excellent results, formulæ given, and the processes explained in a manner suitable for beginners. These classes have been greatly appreciated, and the interest shown by both instructors and those gentlemen attending is evidenced by the great improvement in some of the work lately exhibited at the Society's outings competitions.

* * *

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

A. C.—It is the subject of a patent, and your suggested device differs so little from it that the latter would most certainly be an infringement.

L.—We agree with you that the method is very effective, but it wants careful printing. Had you examined it under a magnifier, you would have seen that the colours are printed in lines from Meisenbach blocks. Evidently the (so-called) three primary colours have been used, each printed from a distinct block. We fancy that the method will come largely into use.

G. C.—Alum is the remedy indicated, and we should advise you to use it. Strength of solution is not very material after the plates have been washed free from hypo. See our note in this issue touching upon heat-proof negatives.

Miles.—The warm colour of the object would at once point to the advantage of using an isochromatic plate or film in conjunction with a yellow screen. The simplest method of using the latter—if of stained gelatine—is to secure it between two pieces of black paper gummed together, and cut so as to fit the diaphragm slot. The opening in the paper will of course be regulated by the size of stop you wish to employ.

O. K.—For such delicate work it is best to use water which has been distilled under your own observation. The most careful distillation will not, sometimes, remove all the lime from water, but the quantity left is so small that for ordinary uses it may be neglected.

Sexton.—The objection to the form of dark-room lamp which you propose is that it employs a burner of the Bunsen type. And this is distinctly unhealthy, if not dangerous, unless the room is very large or there be provided a pipe to carry the products of combustion into the nearest chimney, or into the open air.

* * *

Photographic Societies of France.—The following was the programme of the session of the National Union of the Photographic Societies of France, held at the Hotel de Ville a Havre, from the 20th to the 23rd of May On the 20th : Reception at the railway station of delegates of the various societies attached to the Union ; introductory meeting at the Hotel de Ville ; address of Mons. Léon Vidal, Professor of the School of Decorative Arts, on Polychromatic Projections. On the following day, Sunday : Excursion by water to Tancarville and Honfleur. Monday, 22nd : Meeting for communications and the presentation of works ; excursion to Harfleur ; banquet. Tuesday, 23rd : Visit to the tower and to the harbour ; closing meeting at the Hotel de Ville ; banquet.

PATENT OFFICE

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1813. JUNE 2, 1893.

NOTES.

THE Amateur Photographic Society of Madras will hold their first open exhibition in December next, and this early intimation of the event is doubtless given so that English photographers may be induced to exhibit. Gold, silver, and bronze medals in profusion will be awarded to successful competitors. All particulars will be obtainable from Mr. F. Dunsterville, the Hon. Sec., Madras.

Messrs. Perken, Son, & Rayment have issued a circular containing rules and list of prizes relating to another one hundred guinea competition, copies of which can be obtained from the firm.

It is satisfactory to know that the London water companies are well looked after in the matter of the purity of the article which they dispense to consumers at such tremendous profit to themselves. The monthly report for April tells us that, by reason of the prevailing drought, the condition of the river-derived water supply was noticeable for the exceeding smallness of the proportion of organic matter present therein.

It was lately stated by a contemporary that the first photograph ever taken is owned by the Wedgwood family, and it is described as a heliotype produced in 1793 by Thomas Wedgwood, son of the famous potter. This date is probably erroneous. Thomas Wedgwood's paper describing a new method of sun-printing (he used chloride of silver on paper) was not brought before the Royal Society until 1802, and he had not then discovered any means of fixing his prints. It is, therefore, next to impossible that any specimen of his work, of the date named, should remain to us.

The same authority tells us that one of the first photographs (taken by Professor Draper, of New York University, in 1839) is to be exhibited at Chicago. This, of course, is a daguerreotype, and dates from the year when Daguerre made known his discovery. The picture belongs to Sir John Herschell.

Mr. E. H. Fitch, of Brixton, has sent us a sample of his photo-mechanical celluloid films, which will be a boon for process workers, for they can be printed from either side. He informs us that he was the first to make thick celluloid sheets for focussing screens; and we herewith give him credit for this useful innovation.

Six weeks ago, in a leading article, we urged upon tourist photographers the advisability of securing in their cameras memoranda of "old clo'," and we laid special stress upon those specimens of last century costume which are occasionally to be seen in remote country places. The photographer who turns his attention in this direction will also now do well to photograph any old men and women whom he may meet with, who proclaim, by their workhouse garb, that they are clothed at the expense of the ratepayers.

The distinctive dress of our indoor paupers is to be abolished so far as one parish is concerned, and we may feel sure that the rest will quickly follow suit; for it is found that the frieze coat, or the red check shawl, evolve such sympathy from the public that the wearers thereof too often are enabled to return to the parochial shelter in a state of hilarious inebriety. It will, therefore, be well to preserve for posterity photographs of what the nineteenth century pauper was like.

The question arises in one's mind, Would it be proper to photograph the said pauper—or any other man—in a state of intoxication? One purist, we remember, quoted a photograph of a drunken man as an instance of the abuse of the hand camera. But would it not act as a deterrent to an habitual toper to show him, in his sober moments, a picture of the low thing he made of himself when drunk? We fancy that, in many cases, such a picture would do far more good than the best efforts of the temperance lecturer.

The representative of the *Washington Star* has been interviewing the chief actuary of one of the great American life assurance companies as to the occupation which is most conducive to longevity. In the list given the occupation of the photographer, according to the actuary's statistics, comes very low down. It is not quite so bad as auctioneering and shaving, which figure at the bottom, but it is very far below commercial travelling, which stands at the head. We fancy English experience does not coincide with these statements.

Yet there can be little doubt that photography is what may be called a "wearing" profession, and the unexpected worries and little disappointments must at times seriously strain the nervous system. Not but what matters in the studio have improved of late years. The misery of cleaning plates in hot weather has disappeared; the photographer, after taking half a dozen ineffective shots at a refractory baby, is no longer likely to be sent frantic by seeing a plate slip off his dipper; there is no silver bath to go "cranky" at a crucial moment. The hygeine of the dark room is also better. Any little poky cupboard will not do. Ventilation is even considered advisable: and there are no fumes of collodion, or a likelihood of being poisoned by cyanide. In another respect also the photographer has improved. In the old times a day's work was a day of exhaustion. From breakfast until dusk there was scarcely time to snatch a mouthful of food, and unquestionably many a good man went wrong in the direction of dyspepsia. The photographer nowadays has a chance of getting a mid-day meal in comfort. Yet we doubt whether even this altogether pleases him. There is certainly a charm in a crowded reception room, though dyspepsia may follow in the wake.

The celebrated Broken Hill silver mine of Australia has made a find which, if all that is hoped of it is realised, will have a great effect on the price of platinum. For some time past one company, the Mulga Creek Platinum and Gold Mining Company, has been turning out platinum ore, but as the platinum did not average more than two ounces to the ton, the undertaking was not considered remunerative. Now, however, fresh explorations have resulted in the discovery of a richer deposit, which carries more than four ounces of the platinoid group of metals to the ton, besides gold and silver. The width of the deposit is four feet; its depth has not been ascertained. Meanwhile machinery is being erected for treating the ore on a new principle which is highly spoken of, but until these appliances are ready mining will not be proceeded with. The discovery is exciting great interest in Australian metallurgical circles, especially as there are three other companies at Broken Hill working for platinum besides the Mulga Company.

Artists and engravers are fond of crying out against photography and the way it is used by unscrupulous persons to copy engravings. Of course the practice cannot be defended; but when so much indignation is poured over the photographic "pirate," might it not be well if a little were spared for the artist who produces spurious pictures, which are afterwards sold as genuine works by well-known men? The extent to which this trade in forgeries is carried may be gathered from the statement of a well-known artist, who recently said that out of some two hundred and thirty pictures submitted to him, only twenty-one were genuine. Yet we rarely hear of anyone being prosecuted. The last case was, we believe, that of a forgery of one of Mr. B. W. Leader's pictures. Mr. Leader's style, it appears, is easily caught by an imitator, and hence he is a favourite victim. The United States, it may be mentioned, is the chief market for these wares, and the number of supposed "original" works by living men hanging on the walls of American millionaires must be enormous.

Messrs. Fuerst Brothers have just introduced another developer, under the name of Glycin-Hauff. It is described as one which gives, without the addition of bromide, clear negatives of an agreeable grey colour. It is slow in action, and over-exposed plates may be left in a dilute solution of the new agent, and will be gradually transformed into serviceable negatives.

Glycin-Hauff is also well spoken of as a developer for collodion-emulsion plates, and the following formula is given as a serviceable one:—

A.—Glycin...	60 grs.
Potash carb.	25 ,,
Sodium sulphite	180 ,,
Water...	3 oz.

The water may be warmed to accelerate solution.

B.—Potass. hydrate	150 grs.
Water...	3 oz.

For use, mix 1 part A with 2 parts B.

THE INFLUENCE OF THE HAND CAMERA.

BY W. D. WELFORD.

THE spirit of exaggeration is one of the necessary evils attending the development of photographic civilisation. For years hand-camera workers have been pushing to the front, and striving to make the general photographic public decent and respectably minded citizens. But the dawn of reason has only just arrived, and, though tardily admitted, the *raison d'être* of the hand camera is now recognised. It is possible for the veriest fanatic to now address an ordinary society upon what, in his opinion, are the points of hand-camera work—that is, he can now do it without the sneers and quiet scoffs of the old-timers. So that, in venturing to address myself to the decent and respectably minded body of men that compose the London and Provincial Association, I feel that, whatever the criticism may be, it will be just and generous. Above all things, I am sure you will fight when the time comes, with interest in, and appreciation of, the hand camera itself. The battle hitherto has been between a small body of earnest men determined to advance, whilst opposed to them were thousands of skirmishers, who were too busy with other things to pay much attention to the invading force. The battle-cry of one was, "We are here, and we've come to stay," answered impatiently by the skirmishers, "Tut, tut! run away, little boys, and play," or "Bother these folks, what can they do? What rubbish to trouble us!" The first sign of the dawn of reason I detected some time ago, when I heard that a member of the London and Provincial Association had actually agreed to look at a hand camera, and it was thought to be a reasonable supposition that, ere long, he might actually handle the monstrosity. And now—well,

"Do I dream, do I doubt,
Or is visions about?"

Of course I mean *visions* of hand cameras. I hope you will correct me if I am wrong, but I believe you actually have men now who *use* a hand camera. What has happened to the poor London and Provincial Association? Has it been having too much "spirits" of late?

I said at the commencement that exaggeration is necessary nowadays. If a man wants to sell his camera, he asks £5 10s. for it, so that he can get £4 10s. by "reduction in the camera." You may perchance imagine I am on the same tack, that I am claiming (or, rather, shall claim directly) a good deal too much for the influence of the hand camera, so that I can climb down a little to appease your wrath, and yet get pretty well all I wanted to. Personally, by the conviction of experience, I believe all I say. You may not; that is your fault. In a few years' time they will be accepted as facts.

The influences of the hand camera run in several directions. For convenience' sake I have classified them into two—

Photographic,
Mental or physical.

By an "influence of the hand camera" I mean some power or incentive towards improvement, in which the hand camera has been the sole—or, or least, principal—factor. To make a definite start thereto, I claim that it has been of considerable use in improving photographic materials, apparatus, &c.

Speed of Plates.—Much interest has of late centred round the great efforts of some of our platemakers to obtain the maximum rapidity of emulsion. The makers would hardly do this unless to supply a want; that must be admitted. The point is, From what does the demand spring? I allege from the hand camera. But, it may be said, instantaneous photography in the ordinary camera must not be overlooked. Certainly not, nor the fact that the reduction of exposure in a studio of portraiture, especially baby and child studies, for dimly lighted interiors, and for portraiture by artificial light, is a convenience the desirability of attainment of which, no doubt, has helped in the same direction. There are possibly other causes which I have not enumerated. I admit their power, but deny their importance as compared with the requirements of the hand-camera worker. You may mass all these factors in a lump, and still the hand camera towers above that lump as a mountain to a pinhole. The increased speed of plates is due to the hand camera, and, whatever weight other considerations may have added, they have only been as a single black pin is to a full box of white. It is there certainly, but it does not make us buy the box. If there be any gain to photographers by the increase of plate speed, to the hand-camera the credit must be placed.

Apparatus.—In several directions the influence may be seen. In order to diminish the enormous disparity in bulk and weight between the ordinary and the hand cameras, the former have been cut down in every possible direction. A hand-camera worker grumbles at the unnecessary weight of his 10 × 8 ordinary. Result, improvements and new patents galore. The necessity of reducing the shutter to small dimensions, in order to go inside the limited space of a modern hand camera, has brought upon the market a number of small and ingenious shutters. Possibly some of these and other improvements in apparatus, such as lighter tripods, dark slides, and the use of aluminium, would have arrived in due course. But we've got them *now*, and the hand camera did it.

Small Work.—Although it cannot yet be said that the day of small work has arrived, yet I claim that we are now appreciating quarter-plate prints very much more than we did. This has been a gradual growth truly, but a *résumé* of exhibitions during, say, the last two years would certainly prove the existence of the growth. In the old days the reports were something like this: "Mr. Blank shows a frame of snap-shots, which, as such, are very good." "As such," indeed; that is where the blind bigotry crept to the front. It was usual in those days to term them "snap-shots." Never mind if evidences of composition, careful treatment, and individuality were visible in the prints—that did not matter. They were snap-shots—no more, no—well, I cannot say no less, as no further degradation of photography could be, they imagined. They were taken in a hand camera, and that damned them for all time. But now—they are snap-shots no longer, but prints the same as the rest. The influence has carried us toward the recognition of merit in the smaller sizes of prints, so much so that ordinary quarter-plate and 5 × 4 are constantly represented.

I'll admit that we have not yet reached rock bottom on this question, for, undoubtedly, small work does not receive its full meed of recognition, nor can it be said that hand-camera work is yet free from enemies. Even now, some puffed-up, unmitigated egotist of the high-art school waxes wroth occasionally, and provides padding for one of the photographic publications. He is usually one of those to whom photography must mean "art" or nothing. Well, we hand-camera workers do not suffer very much; I presume we have the proverbial duck's back. Anyway, Mrs. Artist Partington has no broom capable of keeping back the tide of the hand camera. Personally, I consider any man who believes that photography is entirely concerned with art, science, or, indeed, any *one* branch, to the exclusion of every other, may safely be written down an ass. Hobbies may be ridden to the death, but they must not be allowed to order all others off the road.

Increase of Photographers.—Another very powerful influence is that of increasing the number of photographers. I don't think it can be denied that the principle of "You press the button, we do the rest," has increased the number of workers considerably. Many hundreds of the outside public, to whom the very mention of a camera, tripod, lens, &c., would have frightened into fits, have bought a hand camera, to do "button-pressing" for themselves. Many of these must have been seduced into our ranks; for the step, from having "the rest" done by someone else to the doing of it themselves, was one of the easiest transition. Upon this point let me not be misunderstood. I cannot claim that all the "button-pressers" have become photographers (this is a terse way of putting it), but certainly a good many have been so pleased with their new hobby that they *have* made the plunge.

Better Posing of Figures.—This is another influence I claim. Of course, I know full well that all good photographers pay, and have paid, every attention to this matter; but my point is that the hand camera has stimulated effort in the same direction amongst the lesser workers. Let us suppose a case of Smith, a half or whole plate man, and his friend Brown, a snap-shot man. Smith is a careful worker of several years' experience, whilst Brown is but a beginner. Upon a comparison of results, Smith finds that in all his pictures there is too much staring at the camera if he introduces figures in the scene. He finds in Brown's shots, poor though they may be either artistically or technically, that, at all events, every one is not rooted to the spot, looking at the camera, and having the appearance of plaster-of-Paris images plumped down into the landscape, wishing they hadn't come, and wondering how they are going to get out. He takes the lesson to heart, and improvement in this respect follows. I am not saying this without authority, for I have seen the change in the work of many of my friends.

Illustrated Journalism has benefited considerably by the hand camera, as witness the reproductions of shots in the *Pall Mall Gazette*, the *Westminster Gazette*, and other up-to-date periodicals. The hand camera gives the power of depicting life and incident, which to the ordinary camera are impossibilities. This leads me to my last point in this section, but it is in no way least. Indeed I would lay considerable stress upon it. It is the influence of

Life and Character Studies.—As photographers we ought, I really believe, to feel a considerable amount of shame at the neglect of such a fine opportunity. If so be a hundred years hence it may be asked what has photography done, is the reply to be that it has produced pictures (at least the art photographer calls them so, though the painter will in no wise admit the fact), and pictures only? Certainly not. We can point to its use in astronomy, microscopic, medical, and many other directions, including the preservation of historic buildings and spots of interest. But will it not be asked at once, "Why did you not with the ample means at your command preserve for us the dress and fashion, the characters and incidents, the every-day life and bustle of the street?" Are we to answer that we sat at the feet of art masters who taught us so much about the diffusion of focus, the rules and canons of art, the composition, light and shade, freedom of treatment, idealism, realism, impressionism, and a few more "isms," that we either had no time, or were afraid to descend to such commonplace work as the life and character of the present century? I trust not, and sincerely hope a better account of our duty can be given.

(To be continued.)

THE PHOTOGRAPHIC REPRODUCTION OF LEAD-PENCIL SKETCHES, OIL PAINTINGS, AND DAGUERREOTYPES.

BY J. F. S.

IT is universally accepted that many reproductions or copies can be made with the greatest ease, especially by the use of dry plates. This circumstance is not to be accepted as insignificant as formerly. Notwithstanding the great advantages of the wet collodion process, we had to combat the appearance of dry spots where an extended exposure entered into the question.

At present, however, we will consider the proper procedure and the handling of the object to be copied, against which frequently gross mistakes are made.

An ordinary pen-and-ink drawing is easy to reproduce, whereas a lead-pencil drawing, on the contrary, under certain conditions, will almost drive the photographer to despair.

The colour or tone of the graphite pencil is a peculiar one, which it proves very difficult to so reproduce that the negative shows the lines in strong contrast to the local density of the ground.

If we expose fully, the pencil lines come out in a monotone, and we obtain no contrast. With a short exposure, prolonged development fails to produce the requisite strength.

Now the professional photographer, to whom such work rarely presents itself, will naturally strike the golden intermediate, and try a medium exposure, neither too long nor too short. The result in most cases will prove like the exposure, only middling—an intermediate between the two ; that is to say, that when the negative is examined, it will be found that much better results should have been obtained.

But how ?

To obtain strength in the reproduction of pencil sketches it is of primary importance to obtain a strong illumination. Therefore the pencil sketch must be placed in direct sunlight, or the sunlight must be reflected upon the original with a mirror.

After focussing, stop down very small, and give a short exposure, then develop with hydroquinone and potash, according to following formulæ :—

Solution I.

Water	400 parts.
Sulphite of soda	40 parts.
Hydroquinone	15 parts.

Solution II.

Water	400 parts.
Carbonate of potash	40 parts.

For use—

Solution I.	2 parts.
Solution II.	1 part.

The solutions are best kept separate, and when kept in so-called patent beer bottles, which are supplied with gum compression stoppers, will keep indefinitely.

When the conditions preclude sunlight, the same object can be obtained by use of Blitz-pulver, as the subject thereby receives a short, active illumination.

In the development much patience will be requisite, as frequently half an hour intervenes before even the outline becomes visible. Even then it often becomes a trial of patience, and great care must be taken to shield the plate from the red light, and not to examine it too frequently, as the light, no matter how safe otherwise, notwithstanding all claims to the contrary, is apt to affect a plate during such extended development.

Prints on albumen paper from such negatives give good results, but the character of the original is best preserved by the use of contact bromide paper, which may be developed as usual with ferrous oxalate, eikonogen, or hydroquinone.

Any possible spots are easily corrected with a lead-pencil.

The finished prints may be burnished cold.

Oil paintings form another category of difficult objects for reproduction. By the use of orthochromatic plates a great stride forward has been taken. However independent of the sensitive plate, the placing of the original is often very troublesome if all reflection is to be avoided.

Upon one occasion the writer had a series of valuable oil paintings sent to him to copy for reproduction by a celebrated art institute. They were brought to him almost without previous notice, and no time was to be lost in securing a proper lighting, as, on account of the peculiar circumstances, the messenger and porter had to wait until the exposure was made, and return the originals at once.

A driving chase of this kind does not exactly belong to the pleasures of this life. The exposure had to be made in a north front glass-house (side and sky lights).

All roof and side curtains were closed tightly, the camera moved close up to the side lights, and the oil paintings placed against the south wall directly opposite.

Then the roof curtains on either side over the painting were carefully lowered, only so far, however, that the painting was evenly illuminated. As soon as the light from the rolled-up curtain showed the slightest reflection, the respective curtain was at once replaced to its former condition.

That this experience may be of service to others the following particulars are noted.

The originals, mostly landscapes, were all 100 : 60 (39 × 23·4 in.). The distance between camera and original was about 15 feet. Objectives used were either Steinheil Antiplanat No. 7, or Voigtlander Euryscope No. 5, series IV.

With both lenses a No. 4 stop was used. The negatives were all of a uniform size, 13 × 18 cm. (5 × 7).

With the use of Schleussner plates [one of the quickest German dry-plates—Ed.] the time of exposure was between 50-180 seconds, according to the lightness of the original.

Anyone who frequently has oil paintings to copy soon settles on a regular routine : firstly, to see that the canvas is tightly stretched on the frame. Old paintings are frequently loose on the frame, and the canvas shows strong folds, which extend towards the centre ; this evil can often be remedied by driving up the wedges in the corners, which tends to tighten the canvas. When the evil is too great it becomes necessary to carefully remove the canvas from the frame without injuring it, and then stretch it anew.

By no means neglect to cleanse all old oil paintings prior to attempting a reproduction. This is best done in the following manner. After the original is well dusted, wash it off with a clean sponge, using soft (rain) water, until the sponge when squeezed only passes clear water. Then dip the sponge in the following solution and rub over the painting.

White of egg from two eggs beaten and cleared.

Water	½ litre.
Glycerine	1 tablespoonful.

The albumen in this solution acts first as a kind of varnish, in addition to bringing out the deepest shadows with extraordinary clearness.

The glycerine is added for the purpose of keeping the surface moist, so that the albumen does not dry in spots which would then appear dull and prove of injury to the reproduction.

Anyone who has no studio (glass-house) at his disposal, which can be enclosed with curtains, does better to attempt the exposure in an ordinary room. The best illumination is a subdued light, such as that in which all oil paintings are viewed to best advantage.

After focussing sharply the light can be diffused by the simple use of thin muslin.

Another matter not to be overlooked in the reproduction of oil paintings is the fact that the linseed oil contained in the colours soon starts an action which causes even the lightest parts of the painting to become more or less non-actinic. It is best, therefore, to rather over-expose, and develop with an old developer until the operator is satisfied that the plate is not absolutely over-exposed.

When ordinary dry-plates are used, strong contrasts are apt to appear, which may be equalised with matt-lack on the right side, and a corresponding local reduction of the negative film.[*]

Daguerreotypes.

We now come to a class of originals which often prove bad subjects. Daguerreotypes, as a rule, reproduce well, giving all the fineness and detail of the original. But to obtain the proper position for the original presents extraordinary difficulties.

The presence of the mirror-like reflections which appear in almost every position, can only be avoided by placing a board, reaching from the camera to the subject, to cut off all top light. This board is to be covered on the underneath side with black cloth or velvet, and the latter is permitted to hang down on the shadow side, so as to cut off all but the clear side light. The copying bench should also be covered with a piece of black cloth. The same may be done with the brass work of the lens and camera.

This method gives perfect results.

In conclusion the writer states that he trusts the above practical hints may prove of value and a ready help to those professionals to whom such subjects are not the rule, but an exception.—"P. R.," *Photographisches Wochenblatt*, XIX., No. 1.

THE COMBINATION OF OXYGEN WITH HYDROGEN.

BY H. N. WARREN, RESEARCH ANALYST.

A MIXTURE of two volumes of hydrogen with one of oxygen remains inert until a light is presented to the same—so read our modern handbooks of chemistry. But oxygen, in admixture with hydrogen, becomes closer allied to water on increase of pressure, until a pressure of 180 atmospheres is attained, when combination takes place with fearful violence. The experiments which are thus presented by the author, of which a brief description will suffice, were constructed electrolytically, as may be readily observed to be the simplest and at the same time most efficient mode of dealing with the gases. Small selected glass tubes, into which two platinum wires were sealed, after introducing into each a c.c. of acidulated water and sealing the further extremity, were subjected to the action of an electric current of six volts. The rapid bursting of the first series of tubes, consequent upon the heating of the small quantity of liquid contained therein, at once suggested the cooling of the same by inserting the sealed tube and its contents in a strong glass vessel containing water. A tube thus mounted was next put upon trial; the electric circuit having been established, the experimenters meanwhile withdrawing themselves to a safe distance, carefully timing the effect.

In previous cases of trial the tubes had burst within three minutes, after applying the current, with a slight explosion; but in this case ten minutes had elapsed, and the action continued as energetic as ever. Fifteen and twenty minutes passed, and the action within the minute vessel continued as briskly as ever; exactly twenty-five minutes had elapsed when a vivid flash, succeeded by a violent report, terminated the experiment, shattering the glass vessel and scattering fragments in all directions.

Some force of the explosion may be understood from the fact of the sealed tube being but an inch and a half in length, and containing only one c.c. of water; nevertheless, portions of glass were hurled with sufficient force in the immediate neighbourhood of the explosion so as to penetrate a wooden bench to the depth of half an inch, whilst an assistant some distance from the spot narrowly escaped severe laceration. Various other tubes were afterwards experimented upon, affording similar results, the pressure, as arrived at by a careful average, amounting to 180 atmospheres.—*Chemical News.*

PHILADELPHIA'S SHARE IN THE DEVELOPMENT OF PHOTOGRAPHY.

BY JULIUS F. SACHSE.

(Continued from page 327.)

THE splendid results obtained by Cornelius, Goddard, and others in Philadelphia, gave the art-science that impetus which has since placed it among the indispensable arts of the present day.

Another application of the heliographic art, which has now reached enormous proportions—viz., that of mechanical reproductions for printing purposes—is also due to Philadelphia scientists. The first photo-mechanical reproduction ever made was one by Joseph Saxton, to illustrate a Philadelphia book in the year 1841—viz., Eckfelt and Du Bois' *Manual of Gold and Silver Coins.* It is a view of the Mint, and appears on the title-page. We reproduce a copy herewith.

Commenting upon it, the authors state:

"To obtain the vignette of the Mint (which is on the title-page), as there was no medallion to rule from, it was required to go back to the original, and this necessarily brought into play another brilliant invention of modern times, the daguerreotype. A picture of this edifice was taken with this instrument by Mr. Saxton, from which a copy was engraved in soft metal by Mr. Gobrecht; from this copy a counterpart was obtained in copper by the electrotype, and therefrom the engraving was effected. This view is therefore commended to the reader, not only as a faithful transcript of the original, but as combining in its production three discoveries which adorn the present age, the daguerreotype, electrotype, and machine engraving."[*]

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[*] The translator wishes it distinctly understood that he neither endorses the methods of handling originals nor the manipulation here suggested for restoration. In an extended experience with this class of subjects, it has been found that a simple wiping off the original with a soft cloth, supplemented by careful lighting and the use of orthochromatised plates, answers all purposes without running any risk of injury to the original.

The first published record of interior photography appears in a notice of a series of views taken of the thirteenth exhibition, held October, 1844, at the Chinese Museum. For some reason the Institute Committee failed to take any notice of these views : not so, however, with the reporter of the *Ledger*, wide-awake as the news-gatherer of the present day. A note was made of the novelty, and on October 25th, 1844, appears the following notice—viz. :

"In the south-west corner of the gallery, W. & F. Langenheim have their daguerreotype apparatus, with a number of excellent specimens of their work. They have several daguerreotype views of the exhibition, taken from favourable points, which look very well, and are, of course, accurate, but unavoidably left-handed."

As early as the next year, 1845, the Messrs. Langenheim made some excellent instantaneous views of America's greatest natural wonder, Niagara Falls ; specimens which for beauty of finish and execution have never been surpassed. Copies of this effort were sent to Daguerre, to the President of the United States, and to various crowned heads of Europe.

In return Daguerre sent the following characteristic note, one of the few written by him in the first person and signed by his name :

"*A Monsieur le Consul de France à Philadelphie.*

"Monsieur,—I profit with great satisfaction by the return of Mr. Martin to America to thank you for your kindness in sending me the charming view of Niagara, which is due to the amiable attention of Messrs. Langenheim. Besides the merit of these proofs of execution, they have also the merit to represent one of the wonders of the known world.

"I beg of you, sir, to be my interpreter with the Messrs. Langenheim by tendering them all my gratitude.

"I repeat to you, sir, my thanks, and I pray you to accept this expression of my regards.

"Daguerre.

"Bry-sur-Marne, le 30 Juin, 1846."

The King of Saxony complimented the Philadelphia daguerreotypists by sending a note of thanks and a medal.

Frederick of Prussia accompanied his thanks by the great gold medal for art.

The King of Wurtemburg also sent a gold medal.

Queen Victoria, through Lord Aberdeen, sent the following note :—

"I have now the pleasure to acquaint you that, although it is a general rule with Her Majesty not to receive presents from any quarter, Her Majesty has been graciously pleased to accept this view of the Falls of Niagara, and express her admiration at the great skill with which it has been taken.

(Signed) "Aberdeen."

We now come to the next period, which marks the greatest advance in the history of the photographic progress—viz., the advent of glass negatives and positives first applied to lantern slides and stereoscopic views, in the developmemt of which none hold a more honourable position than Francis Schreiber and the two Langenheim brothers. The same may be said of the printing of positives from glass negatives.

In substantiating this claim for Philadelphia, I will quote from the *London Art Journal*, for April, 1851, p. 106, a report which was written by no less an authority than Robert Hunt : "Our attention has been especially excited by some specimens of photographic positives on paper, from glass negatives, which will be exhibited in the Palace of Industry (they are from Philadelphia), to which the inventors have given the names of hyalotypes. In the hyalotype, both the positive and negative impressions are obtained on glass, and the result is as near an approach to perfection as we can imagine. The hyalotype is the invention of Messrs. W. & F. Langenheim, of Philadelphia. These gentlemen state, 'We have substituted glass plate for paper in the negative, and also in the positive altering the process to suit the new material.'"

Robert Hunt continues and says :

"The most interesting application of this discovery is the construction of magic-lantern slides, taken from nature by the camera-obscura, without the aid of pencil or brush." Hunt then goes on to describe some of the specimen slides, nearly all of which were local Philadelphia subjects, such as "The Spring Garden Hall," "The U. S. Custom House." There was a total of 126 views and portraits in this collection. He further states that the colours of these pictures also show a peculiarity in the process of the Messrs. Langenheim. We have them of a rich warm brown, a deep sepia, and many of them intensely black, showing that the art of toning was known to these Philadelphia artists long before it was practised elsewhere.

At the great London Exhibition of 1851, the Philadelphia heliographers were awarded the medal over all competitors, a fact of which they were advised by an autograph letter of Millard Fillmore, the President of the United States.

These same artists were also the first to attempt the publication of a series of stereoscopic views of American scenery.

(To be continued.)

Rotherham Photographic Society.—On Wednesday, May 24th, the first excursion of the season took place, the destination being Ingleton, popularly known as the land of waterfalls. Special railway arrangements had been made, and the day proved favourable. The party, including several friends, numbered thirty-seven.

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[*] "Manual of Gold and Silver Coins," Philadelphia, 1842, p. 189.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JUNE 2, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. VI.—THE PHOTOGRAPHIC SALON.

THE bare announcement of a new photographic exhibition, to be held in London on different lines from those to which we are accustomed, has now been before photographers for some little time, and a more detailed account of the aims and intentions of the promoters may interest my readers, and, I hope, ensure their sympathy and support.

Shortly stated, the one prominent aim is to continue the traditions of the inventors of photography, and represent the great discovery as a means of art.

I do not think it will be denied that the object of the inventors of our art was the production of pictures. The subjects of the early photographers were almost solely portraits, landscapes and still-life, all intended to possess a pictorial character. During the last dozen years the application of the processes of photography to nearly all arts, sciences, and industries, which, of course, has added greatly to the incalculable benefit it has conferred on the world, has tended to diminish its apparent value as a means for the production of pictorial effect, or rather to swamp the art as a means of reproducing the beautiful in the flood of useful applications. (Professional photographers should especially note that when their work is discredited as an art their business declines.) Other causes have had deleterious effects on photography as an art. It has suited the purpose of some florid writers to deny to it any artistic merit, some, on the contrary, possibly, in their forgivable enthusiasm, may have claimed too much for it. Medals once had their value, but now the spreading of medals broadcast on almost any pretext by provincial exhibitions, and some of the photographic papers, has had the effect of lowering the standard of our art instead of, as was probably meant, raising it. There are now healthy signs, however, that photographers are becoming a little ashamed of taking medals for very ordinary everyday work, and the self-respecting are ceasing from competing or exhibiting. The journals are beginning to find that their competitions, once largely patronised, are becoming neglected and the promoters of exhibitions are discovering that by reforming and reducing their list of prizes they attract a better class of exhibitor. A nobler ambition is taking possession of photographers, and their eyes are opening to the wisdom of doing something for the art for the art's sake.

The proposed exhibition will be the outcome of the talk about art that has so much increased of late years, apparently and unfortunately, much to the disgust of those who can only look upon or understand photography as an industry, a handmaid to other arts, or a convenient peg on which to hang theories. There is a time for talking and a time for action, and the time has come for the artists who use photography as their mode of expression to assert the faith that is in them. Last year, by the kindness of the Camera Club, they held an experimental exhibition which was so successful, and visited by such numbers of the public, as to become, to put it plainly, something like a nuisance, for the flocks of visitors almost crowded out the members, and deprived them of the privacy and comfort which are among the main objects of a club.

The new exhibition, then, will be devoted entirely to photography as an art, or, to be still more definite, if presumptuous, as a fine art. It is hoped that every picture exhibited will be worthy of study for its pictorial qualities, the idea or sentiment it conveys, its composition, chiaroscuro, breadth, atmosphere, or execution. The last-mentioned quality not meaning the strict mechanical perfection of optical and chemical combination which has grown to be considered, quite erroneously, the standard of photographic perfection, but the skilful use of photographic means to a pictorial end.

It will be at once seen that the exhibition will not be the heterogeneous assembly of pictures, experiments, and tools to which we are accustomed. There was a time when "artists in hair" were allowed to contribute to the exhibitions of the Royal Academy. Many curious things were admitted to the early displays, but never samples of paint, canvas, and brushes, and all but painting, sculpture, architecture, and engraving—all included in the term fine art—was swept away more than a century ago. It was inevitable, and, perhaps, advantageous, that things should be a little mixed during the first fifty years of the life of our own mixed art; but the time is surely come, especially in this age of specialism, when a distinct line should be drawn. An abyss separates the mason from the architect, and the time seems come when we should separate the pictorial photographer from the scientist, the photographic chemist, and the manufacturer. Each has his separate merits; but the mixture is incongruous. Even the manufacturers have shown, by abstaining from the Crystal Palace show they once so strongly patronised, that they no longer care for mixed exhibitions. The maker of paints no longer claims to be a painter, neither would he aspire to become a member of the Royal Academy, although there is no doubt he would be eligible for the Royal Society.

One of the features of the exhibition will be the absence of all awards. The only rewards contemplated at present is the happy consciousness of the exhibitor of having done something for the art which has been the main study of his life, or the solace of his leisure, and the honour of having his name recorded in the catalogue of the first public exhibition solely devoted to photography as a fine art. He will also have the pleasure of seeing his pictures in good company, where their merits may be appreciated, instead of being buried and ruined in a mass of mediocrity. The exhibition will be open to all. There will be no invidious distinction between professional and amateur; the only passport will be quality.

As there will be no awards so neither will there be any payments. There will be no irritating charge for wall-space, and, as at other fine art exhibitions, pictures will be sold on commission. It should also be mentioned that the exhibition will be held at the Dudley Gallery, Piccadilly, and will be open from October 9 to November 11, 1893.

Photographers, or that portion of them who look upon their art as something other than a plaything, or a business speculation, will now have an opportunity of showing what they are really worth, and it is to be hoped they will bestow their best energies for the next few months on work worthy to represent them at the first Photographic Salon.

There is just one other matter on which I must touch, however reluctantly. Our scheme has been received with favour by the best part of the photographic press, and—shall I say—tentatively by the rest, with the exception of one editor who, although he had a full list of the promoters sent to him, affects to look upon it as the speculation of one of our number only, and whom he tries, ineffectually, to ridicule. In this his limited readers will easily discern other motives than a desire for the good of photography and appreciate at its worth. Another, who apparently has misunderstood our scheme for the moment, thinks it witty, by way of encouraging progress in the art to which his paper is supposed to be devoted, to call us "fuzzists and faddists." The reply I can give to both is simple and complete. It is the list of those who are promoting and organising the exhibition. I think that among them, not only all shades of opinion will be found, but *the* representative exhibitors of every opinion. I give the names alphabetically:—Bernard Alfieri, J. S. Bergheim, Rowland Briant, T. J. Bright, A. Burchett, V. Blanchard, E. Calland, H. H. Cameron, Lyonel Clarke, Francis Cobb, W. L. Colls, W. Crooke, H. E. Davis, George Davison, Col. J. Gale, J. P. Gibson, Karl Greger, W. A. Greene, R. Keene, A. Horsley Hinton, F. Hollyer, A. Maskell, H. P. Robinson, Ralph W. Robinson, Lyd. Sawyer, F. Seyton-Scott, H. Stevens, F. M. Sutcliffe, Harry Tolley, H. Van der Weyde, J. B. B. Wellington, W. Willis, and B. Gay Wilkinson. Among the foreign members are Baron Nathaniel de Rothschild, Shapoor N. Bhedwar, Hector Colard, and Carl Ulrich.

Finally, I am glad of this opportunity of disclaiming any hostility to the Photographic Society of Great Britain. There is no intention whatever of setting up an "opposition shop." We are only taking up that part of photography in which the Society seem to be losing interest, and to which they appear to prefer the blandishments of science and mechanical processes. They are taking perhaps the higher ground; but we prefer the primrose path of art. It must be irksome to a society to be trammelled by a subject in which they take only a languid interest once a year, and we propose to take part of the burden, for which they should gratefully say, "For this relief much thanks."

An exhibition of the kind intended ought no more to hurt the show of the P.S.G.B. than the Grosvenor or the New Galleries damaged the Royal Academy, and it is well known that these apparent, but not real rival exhibitions, did enormous good to painting by affording opportunities for the display of—eccentricities if you will, but which the wise prefer to call new ideas and new methods. That the two exhibitions will open within a short time of each other will surely be to the advantage of both. Many country visitors who run up to see the new show would not consider they had done their complete duty if they did not look in at

Pall Mall. And it should not fail to be noticed that the promoters of the new have had the courtesy to concede the older institution a fortnight's start.

If any further evidence is required that any little animosity among some of us (which never existed against the Society itself) is quite dead, I may point to the fact that four of our members have allowed themselves to be elected on the jury of five judges of the P.S.G.B. Exhibition. Perhaps there are some who will smell treason here, or a job. The one show will help the other. Students must go to both, and—to quote Spenser, with the substitution of a word not so much used in that poet's time as our own—

> "And as he goes, he marks how well agree
> Science and Arte, in discord unity.
> Each striving who shall best performe his part,
> Science now helping Nature, Nature Arte."

THE WIDE ANGLE CLUB.—VI.

THE first excursion organised in connection with this important Club duly took place on Wednesday last. The weather being good, the dinner excellent, and with 300 plates exposed, the outing was voted a huge success. Punctually at 9.15 the train puffed out of the Bumbletown Station, no one but the station-master knowing the importance of the living freight that morning. But in that train were sixteen stalwart members of the Wide Angle Club, with cameras galore and plates galorer. Jim the pot boy said to his chum Ned on the platform, "What price all these 'ere bloomin' pollygraffers?" but to the surprise of the members no other lounger or passenger seemed to appreciate the importance of the occasion.

The President had opened the doors of the carriages and remained outside to the last; for, as he said, "The captain must stay till the last on board the doomed ship." To this remark Mr. Squibosh objected, but the President, with a determined air of sitting down firmly upon obstruction at the very commencement of the day, said severely, "Sir, that is a quotation."

What the three or four ordinary mortals thought of the conversation in the carriages is not recorded, but the photographic jargon must have surprised them. When fairly seated down, and the various bags, legs, and boxes stowed away under the seats and on the racks, the members settled down to a steady chat.

One of the funniest incidents in one compartment was that each of the five members had forgotten something, and the conversation was something like this:—

Mr. Hawkeye: "Good gracious, where are my legs? Surely I haven't left them at home."

Mr. Proudlock: "No, I saw you with them on the platform."

The old lady in the corner seat hopes these are not escaped lunatics, for how on earth could a man leave his legs at home?

Mr. Squibosh: "There! I've forgotten my cap."

Sharp little girl at the other end of the seat points out that it is upon his head. Great laughter at his expense.

Mr. Jingle: "Goodness, I've left the diaphragms behind; what shall I do?"

As neither the little girl nor the old lady know what these are, they only stare blankly.

In the next carriage Mr. Arch was the life of the party. At each station he opened the window and beamed forth. It was curious, too, that there was always somebody on the platform he knew. The usual formula was:

"Hullo, Jack! This is the Wide Angle Club excursion, and we're going to Dingle Dell to take photographs."

Mr. Fordwell was in the third carriage, and rigidly stood at the open window for snap-shots. The members wanted the window closed, but his argument against it was most conclusive: "I should not get any shots." However the first attempt he made was just too late, the train running into a tunnel just as the shutter went off. He sat down after that.

The President was not idle during the sixteen miles' journey, for with pencil and paper he was drafting out some rules, which were to be observed during the outing.

At last to the delight of the members, and certainly to the delight as well of the other poor travellers, Dingle Dell Station was reached and a general bundling out followed. The platform was literally covered with tripods, boxes, and baskets. Fordwell had got three hand-cameras, and several had two cameras. After the train had gone Mr. Honmention found that he had left his legs in the carriage, but otherwise everything else seemed safe.

The President led the way into the little waiting-room for a meeting. "Friends, Gentlemen, Members of that great Wide Angle Club,—We are here. The Dingle Dellites shall witness our prowess (great cheers), and, as Shakespeare puts it, 'This is the day of our content.' But we must have rules, and as commanding officer, I will read you the orders of the day." (Hear, hear.)

As these may be useful to other societies, they are given:—

1. Each member is to lend anything asked for by another member.

2. Each member must carry his own traps, unless he can lend some part of them to anybody.

3. Any advice required by a member as to correct exposure, what stop to use, or whether to take a picture upright or the other way, must be cheerfully given.

4. Nothing stronger than lemonade may be drank until dinner-time.

5. Each member must keep out of the way of the others, and in photographing some particular spot, it must be done in turns, the order being decided by a toss-up (sudden death).

6. If any fatal accident resulting in death happens, the members must make a stretcher of their tripods to carry back the mournful remains.

7. Swearing only permitted if occasion warrants.

8. The members are not to photograph each other.

9. The members must keep together, so that everyone can take the same view.

The next business was getting to the celebrated Dingle Dell itself, a walk of half a mile ; then work commenced in real earnest. The frenzied state each man worked himself into in setting up his camera was a proof of the anxiety to use up the plates.

There were two incidents worth recording. Mr. Brewer stepped neatly but rather unwillingly into the stream and considerably damped his ardour and his plates. Mr. Stiryou had a patent shutter of his own construction discharged by a long string. This, he explained, enabled him to be a great distance from the camera when he made the exposure. The advantage claimed for this method he did not enlighten the members upon, except that "anyone could make the exposure for you." This a cow did for him, on one occasion, by catching the string in her mouth with the grass she was nibbling. He was allowed to swear on that occasion, but the animal did not seem at all surprised.

Space will not allow of further notes, but the dinner in the afternoon, at "The Seven Bells and Fiddle" Inn, will long be remembered. Such beef, such bread, such mustard, and such home-brewed beer. Such appetites, such thirsts. Everyone felt so happy and so pleased with himself afterwards, and the return home was one long string of songs, duets, and stories, laughter and cheers, until the other passengers said, "Wonder what football club that is?"

RETOUCHING.*

BY ERNEST C. MORGAN.

MR. CHAIRMAN AND GENTLEMEN,—I have to thank your President and your Secretary for the privilege of addressing you to-night on retouching, an art that I have practised for many years.

I have found it of so much utility and benefit in my own work, that I make no excuse for choosing to address you upon it in preference to a more showy and taking subject.

I am given to understand that you expect of me something more than a lecture, and will not be content with less than a demonstration. You prefer to see things done rather than talked about, and I will try to make my paper as practical as the nature of the subject admits. It must, however, be remembered that retouching is emphatically not a demonstrative art. Good retouching is essentially modest and retiring. Its very existence is unsuspected by many who admire the results produced by it.

It is the Cinderella of the photographic arts, and its lot is generally to work without recognition or acknowledgment. I do not suppose I can act the fairy prince and raise it, by anything I can say to-night, to honour and esteem amongst amateur photographers, but I should be glad if I could at least cause you to consider whether a very useful, and in portraiture I might almost say an indispensable, art is not neglected more than it deserves to be. My own experience gives me grounds for assuming that it *is* neglected by amateurs, because, although I have met with amateur photographers excelling in many branches of photography, I have never met with an even passably good amateur retoucher.

The professional photographer, on the other hand, is very fully alive to its advantages, and is generally supposed to love it "not wisely, but too well." How is this neglect to be accounted for? Are amateurs deterred by the apparent difficulty of the work, or do they look askew at retouching as an illegitimate tampering with the truth of a photograph?

If you examine carefully the work of a really competent retoucher on a head that has required clever treatment, it is quite possible that you may feel a little discouraged at the evidence it shows of a high degree of skill, which it is perfectly evident must be difficult to acquire.

It must seem to the average amateur photographer that the time and patience necessary to attain such great proficiency would not be worth the while, and that he would do better to confine himself to landscape and subjects where the want of retouching is not so apparent.

But, after all, the proper study of mankind is man, and I suppose there was never an amateur, however unambitious, but who cast longing eyes on portraiture. Luckily, retouching is an art that pays good returns for small investments of time and thought spent upon it. A very little skill, if supplemented by intelligence, can be made of great use, and I feel perfectly sure that the most casual amateurs would not find that any time given to learning the rudiments of the art was spent without result. If you are careful, and resolute not to put any work on to a negative you do not know will be an improvement, however little work you are at first able to do will be of advantage to your picture, even if it is confined to removing obtrusive defects or blemishes on the skin, or mending up neatly mechanical defects in the negative. Even such humble work as this will often make a negative satisfactory that could not be acceptable without it. If you learn how to get a suitable surface on your negative to work upon, and a properly pointed pencil to work with, you can get thus far without difficulty, and I hope to-night to be able to teach so much to everybody here who cares to learn. As soon after as sufficient delicacy of touch is acquired to, if necessary, work on the negative so finely that the touches do not show when printed, further progress can be made towards retouching a head more completely.

I have besides heard of conscientious photographers being deterred from practising retouching by an exaggerated respect for the truth of a photograph. But the inviolable truthfulness of a photograph is an unconsidered idea ; an average photograph is, in fact, one mass of inaccuracies, and its irregularities are only too apparent to anyone examining it with the slightest care.

In comparing a photograph with the object presented by it, the most noticeable variations of the photograph from the object as seen by the eye is generally its failure to render colour. This we are of course prepared for, and I am sorry to say even retouching cannot make good the omission, and for this reason we are not concerned with it to-night.

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* A lecture delivered before the Richmond Camera Club, April 24th, 1893, C. H. Davis, Esq., in the chair.

There are, however, other particulars in which photography seriously falls short of an ideal expression of the object photographed, and in most of these retouching can render very material assistance.

Take, for instance, the modification of tone by colour, and this in itself is sufficient to prove the utility of retouching. Colour exercises a seriously disturbing influence in the rendering of tone by a photographic plate, and no object in which there is a great diversity of colours can be rendered in a photograph in its proper relation of tones.

In a photograph, reds and yellows will be represented much too dark, while the colours at the other end of the spectrum—the blues and violets—will be lighter than they should be. The introduction of isochromatic plates has lessened this fault, but the correction has only been partial and incomplete.

An engraver rendering an oil painting, or an etcher working from nature, is able to put aside colour altogether, and to express his subject by the proper relation of its tones to one another. If he gets a red and a blue together it makes no difference to him, he expresses them simply as tone values, and according to their depth or intensity as seen by the eye. In a photograph everything is distorted by the influence of colour. A red and a blue together send their relative tones flying wide apart, and so exaggerated and untrue, that the merest novice in retouching could see the inaccuracy and to some extent correct it. Consider for a moment the effect of the colouring of the human face on a photograph.

Here we have an object with such varied colour and tone that it is almost impossible to get a passably truthful representation on a photographic plate. Take a fair subject with a high colour and a freckled skin, and if you want to make a bitter and implacable enemy for life, show your subject the result untouched. Every freckle and imperfection in the skin that in life are not noticeable, and in the reduced size of a cabinet or carte photograph could not have been seen at all, stand out harshly and obtrusively, and the unfortunate subject looks as if a charge of a shot had been distributed over the face. The glowing colour in the cheeks again, which in life would be a charm, is rendered in the photograph as a shadow, and gives an unnatural hollowness to the cheeks, and a sunken appearance to the face. The hair again, being a warm tone, is sure to be rendered darker than it should be, while the eyes, if blue or cold grey, are lighter.

The effect in extreme cases is horrifying, and in all cases inaccurate. A photograph is often described as "justice without mercy," but this should only be when it is retouched; in its untouched state it is generally "justice without mercy," with the "justice" left out. Of course I have put here an extreme case; some of us may be fortunate enough to keep through life the bloom of youth on our complexions, and preserve a skin unsullied by freckle or blotch; but we should then feel all the more keenly the flagrant injustice of representing the face blotched and uneven by the variations of colour in the skin unseen by the eye.

An interesting illustration of the effect of colour on the skin was reported in the photographic press some months ago, when the photographs of a sitter in the earliest stages of fever revealed indications of the disease on his face long before they could be detected by the eye.

(*To be continued.*)

THE ASTRO-PHOTOGRAPHIC CHART.

BY HAROLD JACOBY.

THE general purpose of this important international enterprise is well known, but now that the making of the negatives has actually begun, it may be of interest to give a brief sketch of the present condition of the work, as shown by the action taken at the more recent committee meetings. Some of the resolutions previously adopted have since been repealed or amended; others, though not formally repealed, have failed to be carried into execution. It will thus be seen that there is now a tendency to allow a certain flexibility in the interpretation of the resolutions. Whenever possible, individual opinion is to direct individual effort, and absolute uniformity in the work of different observatories is to be insisted upon in matters of fundamental importance only. There does not seem to be any probability that the enterprise will fail, either on account of differences of opinion or from an attempt to attain too high a degree of accuracy or uniformity.

Selecting from among the many details recently published concerning the work, it is interesting to note the way in which the plates are to be distributed upon the sky. It will be remembered that the photographic refractors are to have an aperture of 0*m*.33, and a focal length of about 3*m*.43. Thus a minute of arc upon the sky will correspond to about 1*mm*. on the plates. The latter are to be 160*mm*. square, but the "effective field" is to be taken as only 2° square. Now, neighbouring plates are to overlap in declination by at least half their diameter, so that a star situated at the centre of one plate will also be found near one corner of the effective field of the next plate. In order to accomplish this in the simplest way, the plates are to be exposed so that their centres will lie upon successive parallels of declination 1° apart. The whole sky will thus be covered by successive bands of plates. Now the centre of the first plate for bands of even declination will correspond to 0*h*. 0*m*. of right ascension. For the bands of odd declination, the first plate will be centred upon a point whose right ascension is approximately the mean of the right ascensions belonging to the first and second plates of the neighbouring band. This arrangement will be easily understood from the accompanying table. Near the equator it will be sufficient to have the other plates of each band follow at intervals of 8*m*. of right ascension. But as the declination increases, the right ascensions of contiguous plates will differ by more than 8*m*., until at last the polar band will contain one plate only. The rrangement finally decided upon is exhibited in the following table :—

TABLE OF ARRANGEMENT OF PLATES.

Declination of Band.	R. A. of First Plate of Band.				Internal R. A. Consecutive Centres.	No. of Plates in 1 Band.	Total No. of Plates.
	Even Decl.		Odd Decl.				
Degrees.	h.	m.	h	m.	m.		
0 to 27	0	0	0	4	8	180	4 950
28 to 36	0	0	0	4	9	160	1,440
37 to 48	0	0	0	5	10	144	1,728
49 to 59	0	0	0	6	12	120	1,320
60 to 63	0	0	0	8	16	90	360
64 to 66	0	0	0	9	18	80	240
67 to 70	0	0	0	10	20	72	288
71 to 74	0	0	0	12	24	60	240
75 to 78	0	0	0	15	30	48	192
79 to 82	0	0	0	20	40	36	144
83 to 85	0	0	0	30	60	24	72
86 to 87	0	0	0	45	90	16	32
88	0	0			120	12	12
89			1	30	130	8	8
90						1	1
Total number of plates for one hemisphere……………………………							11,027

The numbers in the fifth column of this table are btained by dividing 1,440 (the number of minutes in 24*h.*) by the interval of successive centres as given in olumn 4. The last column is obtained by multiplying he number of plates in one band (as given in the fifth olumn) by the number of bands (as indicated in the first olumn). But the plates whose centres are at 0° declina- ion are credited half to each hemisphere. Thus, for nstance, from 37° to 48° there are 12 bands of 144 plates ach, or 1,728 plates in all. Now, suppose we wish to now what plates will contain a star in R. A. 0*h.* 47*m.*, ecl. 39° 40′. The above table shows that it will be on he sixth plate of the 40° band and the fifth plate of the 9° band. For in accordance with the explanation already iven, the bands of odd declination have the first plate t 0*h.* 5*m.* right ascension for declinations between 37° nd 48°.

Of course, in order to make certain that the plate is eally exposed to the proper point on the sky, it is neces- ary for the astronomer to bisect a certain known guide- tar, with the micrometer of the guide-telescope attached o the photographic equatorial. The selection of these uide-stars from the existing star catalogues has caused onsiderable trouble.

(*To be continued.*)

CORRESPONDENCE.

COLOUR PHOTOGRAPHY.

Sir,—About a year ago it was asserted by Alphonse Berget, in the *Revue Illustrée*, and by other writers of note, and in cable despatches that were published in almost every newspaper and scientific journal in Great Britain and America, that Professor Lippmann, of Paris, had succeeded, by his process of colour photography, in reproducing the natural colours of familiar objects, such as a parrot, a dish of fruit, a stained-glass window, &c., &c. The truth was, that the colours in the photographs, instead of being the natural colours of the objects, were the peculiar changeable colours of thin films, which in some cases spread themselves over objects that were without colour in the original, while the high-lights on the whitest objects came out blacker even than the shadows of the darkest objects. Professor Lippmann never showed (I doubt if he ever dared to show) the originals in comparison with his photographs, and people who had first seen the heliochromoscope colour reproductious characterised the claims made for the French productions as "impudence."

Now comes a statement from M. Léon Vidal (Photographic News, p. 331)—a man who writes as a photographic authority, and who is believed in by a great many people—that the brothers Lumière, with a modification of Lippmann's process, have made landscape photographs in which (1) "the colours of Nature" and (2) "all the most delicate greys and whites" are (3) "depicted with unrivalled exactitude." M. Vidal is either stating facts of extraordinary importance, or else he is not stating facts at all. Is it possible that the brothers Lumière have actually succeeded in obtaining photographic colour reproductions that approach to the realism of the heliochromoscope reproductions, *or that are even for one moment to be compared with them ?* Judging from what I saw and heard last year, I think it is far more likely that M. Vidal (to quote from his own characterisation of my writings on composite heliochromy) is trying to "throw dust in the eyes of simple mortals." I am sure the photographic world would like to know the truth, and I think that, under the circumstances, M. Vidal should either prove his assertions or acknowledge that he has been misrepresenting the facts.

I believe the truth about this Lippmann-Lumière process is—(1) that it can be made to produce brilliantly-coloured photographs of objects that have no colour ; (2) that the colours are always the colours of thin films instead of the pigmentary colours that are so common in Nature ; (3) that under varied conditions of illumination of the object, one colour may reproduce as two or more entirely different colours, such as red in shadow, and blue or green or yellow in lighter shades ; (4) that by varying the amount of exposure, almost any one colour may be made to reproduce either as red, yellow, green, blue, or purple ; (5) that not one in a hundred of the photographs that have been made by this process showed colours near enough like the originals so that the makers would have the courage to show them as proofs of the claims made for the process, even without the originals for comparison ; and (6) that the best result ever obtained would not, in the presence of the original, bear one moment's comparison with the results that can be obtained by the heliochromoscope method with almost the ease and certainty of ordinary photography.

If I am mistaken, I wish to be corrected ; but I want proofs, and not "dust in the eyes."

F. E. Ives.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

9,666. William Frederick Fletcher and Elisha John Bryant Danks, 60, Stanmore Road. Edgbaston, Birmingham, "An Improved Means of automatically locking Shutters of Photographic Dark Slides."—*May* 15*th*, 1893.

9,766. Charles Bond. 53, Arcade Chambers, St. Mary's Gate, Manchester, "Improvements in Photographic Cameras."—*May* 16*th*, 1893.

9,848. Samuel Henry Brittain, 263, Balsall Heath Road, Birmingham, "Holding Photographic Plates during the Process of Development, whereby any contact with the operator's hand with the bath is prevented."—*May* 17*th*, 1893.

9,869. Samuel Foxon, 88, Sharrow Lane, Sheffield, "Improvements in Caps for Photographic Lenses."—*May* 17*th*, 1893.

10,001. William Wilson, 3, Great Avenham Street, Preston, "A New Multiple Revolving Photographic Dark Slide."—*May* 19*th*, 1893.

10,064. Jules Richard, 45, Southampton Buildings, Chancery Lane, London, "Improvements in and relating to Photographic Apparatus."—*May* 19*th*, 1893. (Date applied for under Patents Act, 1883, s. 103—April 18th, 1893, being date of application in France.)

10,131. William Joseph Dibdin, 28, Southampton Buildings, Chancery Lane, London, "An Improvement in Photographic Apparatus."—*May* 20*th*, 1893.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

May 25*th*.—Mr. P. Everitt in the Chair.

Mr. J. Cadett showed a standard amyl acetate lamp, and described one which he was having made of glass, with a silver wickholder to prevent corrosion.

Mr. Child Bayley showed plates exposed in portions to light without being developed or fixed, to illustrate the different colours obtained on different emulsions. A pure bromide film of boiled emulsion gave a pinkish brown result, whilst that on a film containing iodide and prepared with ammonia was slaty in colour.

Question from the box: "Is it possible to produce a lens having a round field which can be flattened at will without decreasing the aperture?"

Mr. A. Mackie thought the question obscure.

Mr. W. E. Debenham said that a lens of the Steinheil aplanatic or rapid rectilinear kind would, if the glasses were set nearer together, fulfil the conditions proposed. The field would then be round, and it would only be necessary to separate the lenses to the original distance in order to regain flatness of field.

Some discussion took place upon a tele-photo lens of foreign make, and a comparison between its construction and that of Dallmeyer's lens.

Mr. W. E. Debenham said that a great point in Dallmeyer's tele-photo lens was the use of a positive lens capable of adjustment for spherical aberration. The negative element used for making the enlarged image introduced negative spherical aberration, and that to an extent varying with the amount of enlargement. The introduction of spherical aberration he did not consider a good thing, but the use of positive spherical aberration in one part of an instrument to eliminate the negative spherical aberration of another part was a very happy and successful idea.

Mr. T. Bolas agreed that this was a unique point in the Dallmeyer construction.

Mr. J. S. Teape showed some plates to which he had referred in a recent correspondence concerning halation and multiple-coated plates. On an ordinary plate backed with caramel and a little sienna, he had given exposures up to thirty times that which sufficed to produce reversal without obtaining any halation. In a severe test, caramel must be used without any burnt sienna or other similar colouring matter, though a little gelatine might be used.

Mr. Debenham agreed that caramel alone without sienna was more perfect as a backing than with it; but a thick coating was necessary. Any opaque colouring matter reflected back some light on to the plate; but, in a transparent and highly-coloured material like caramel, having about the same refractive index as glass, the light travelled on until it was absorbed without refraction taking place.

Mr. Teape had found this to be the case when examining various mediums on the face of a prism. Sienna and gum, or sienna and dextrine, reflected a very large amount of light, whilst, with caramel, none could be observed.

The Chairman said that a backing which had been recommended, consisting of aurine dissolved in collodion, fulfilled the conditions Mr. Debenham had laid down.

Mr. Debenham said that the refractive index must be taken into account. It might not be easy, too, with collodion, to get a sufficiently thick coating to absorb all the light, and then some would come back from the back of the collodion film. With regard to the multiple-coated plate, whilst the freedom from halation compared with an ordinary unbacked plate was no doubt a great advantage, still, he thought the strongest point was the longest scale of gradation, and so the more truthful representation of Nature.

The Chairman thought that there was no advantage in a longer scale of gradation in the plate, unless paper could be prepared having also a longer scale of gradation than that now in use. If the scale of the printing paper is more contracted than that of the negative on an ordinary plate, there is no use in increasing the scale of the negative.

Mr. Debenham thought that the Chairman was confusing two things, density and gradation. The limit of density and of clearness on two plates might be the same and within the range of the paper; but, in the one case, all the lights above a certain degree would be nearly alike; whilst, in the other, they would show distinct differences more nearly corresponding to the truth of Nature.

South London Photographic Society.

Ordinary Meeting at Hanover Hall, Hanover Park, Peckham, May 15*th*.—The President (Mr. F. W. Edwards) in the Chair.

At the conclusion of the formal business, Mr. E. J. Wall delivered a lecture on "Isochromatic Photography." He said, although the principle of isochromatic photography had been known for some years, it was not until Edwards introduced plates commercially that it received any attention in England. The sensitive salt used in the preparation of orthochromatic plates is stained with a dye, usually erythosin, one of the eosin series. A great many amateurs think they cannot use the plates without a screen. It is seldom required; improperly used, as bad a result can be obtained in the opposite way. In the spring and autumn, when the grass and trees are more yellowish than in the summer, the value of colour-sensitive plates ought to be more appreciated. In the summer a great deal of white light is reflected from the foliage. Isochromatic plates show a great improvement in the rendering of distance, and finer detail in the shadows and water are obtained. In snow scenes a better gradation of the whites is given. By the use of too deep a screen the sense of distance is destroyed. In sunset scenes the superiority of the plates is strikingly apparent. No yellow screen is required, and comparatively shorter exposures given than when using ordinary plates. A screen would make the shadows blacker. For clouds and seascapes isochromatic plates should only be used. For clouds, using a slow plate and stop $f/16$, an exposure of $\frac{1}{4}$th to $\frac{1}{20}$th of a second will be sufficient. Thunder clouds require $\frac{1}{4}$th of a second, but for ordinary $\frac{1}{10}$th is enough. Cloud negatives should be kept rather thin. The new developers, amidol or metol, are preferable to pyro for cloud work. Amateurs' snow pictures are mostly unsatisfactory. By using a colour-sensitive plate of medium rapidity and a second tint screen, and giving a comparatively long exposure—carrying out the old principle of exposing for the shadows, and then in developing get a rather thin negative—better snow pictures will be got than before. Colour-sensitive plates are necessary in copying pictures. Sunlight is the best light to use for this purpose; next, magnesium, and then gaslight, and, lastly, diffused daylight. For ordinary work gaslight is more convenient than magnesium. The lecturer used two Defries' lamps, with the globes coloured with yellow varnish, and gave enormously long exposures. For pictures containing a good deal of red it was necessary to prepare plates specially for the purpose. Cyanine dye is the best sensitiser for red. To make plates that will keep prepare your own cyanine. Oil-colour paintings require more exposure than water-colours, pastels less, and illuminated addresses still less. For home portraiture the most rapid plates should be used. The only case in portraiture in which a screen, and that a very pale one, should be used, is to render very pale blue eyes. The faults of isochromatic plates are the great tendency to too great density, but this can be dealt with in development. Ammonia is more likely to yield fog, and for this reason pyro-soda has been recommended as a developer. Pinholes—these appear in greater numbers when ammonia is used as the accelerator than when soda or potash is substituted. Screens of various makes were shown, but, if desired, photographers can prepare their own by dissolving one grain of brilliant aniline yellow in an ounce of amyl collodion—*i.e.*, pyroxilin dissolved in amyl acetate and coating thin glass with it. By using two grains of the dye to the ounce a screen increasing exposure three times will be obtained. Microscopic cover glasses are useful in preparing screens, and two of them can be fastened together.

In the discussion which followed Mr. H. E. Farmer recommended amidol as a developer for colour-sensitive plates.—Attendance 53.

May 22nd.—Excursion to Gomershall, Shere, and Albury. Twenty members were present, and a most enjoyable day was spent.

LEYTONSTONE CAMERA CLUB.

Syllabus for June, 1893.—The following field days, &c., are announced:—Saturday, June 3rd.—The Tower of London. Leader, Mr. G. H. Cricks. The Club will assemble at the gates at three o'clock. Saturday, June 10th.—Up the River to Battersea Park. Leader, Mr. A. E. Bailey. The Club will proceed by the first boat after 2.45 p.m., from Old Swan Pier, London Bridge. Saturday, June 17th.—Hayes and Keston, Kent. Leader, Mr. F. Lohmeyer. The Club will proceed by the train leaving Cannon Street at 2.45 p.m., arriving at New Beckenham at 3.13 p.m. Saturday, June 24th.—Greensted Church and Ongar. Leader, Mr. T. F. Sanderson. The Club will proceed by the train leaving Liverpool Street at 2.10 p.m., calling at Leytonstone at 2.39, arriving at Ongar at 3.24 p.m. Wednesday, June 28th.—Second annual general meeting at headquarters for the purpose of receiving the balance-sheet and report and for the election of officers and Council for the year 1893-4. Chair taken at 8 o'clock (it is hoped every member will attend).

Nominations from members for the officers and Council, to be voted for at the annual general meeting, will be received by the Hon. Secretary not later than June 10th.

The Club Room is open to members every Saturday evening at eight o'clock. The dark room remains open at all times.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, *May 23rd.*—Mr. J. O. Grant in the Chair.

Mr. R. Beckett said he had inquired about polychromy, but doubts were expressed about it.

Members' work shown by Messrs. Dean, Gosling, Roofe, Sodeau, and Wire.

Mr. Grant showed an electric lamp which would work for eight hours, and can be used as an ordinary reading or dark-room light.

Mr. R. Beckett showed a Swift's hand-camera lens (45s.), anastigmatic, covering quarter-plate sharply to corners; 5½ inch focus, full aperture $f/8$, with iris diaphragm.

Mr. Gosling showed his half-plate hand-camera, which by adding a central division, could be used for stereoscopic work.

Mr. Hudson showed the "Meteor."

Mr. Sodeau showed one he had had constructed capable of being used as an ordinary camera, and had all the movements. It was somewhat large.

Mr. S. J. Beckett showed the camera he used when in Italy. He used a Thornton-Pickard shutter, had a focussing scale, and double dark slides. The shutter draws right out, and, by reversing when reinserting, he could tell when plate had been exposed, as one side was plain and the other polished.

Mr. Grant gave his experience of a kodak, and thought, as a rule, they—or his, at any rate—were not quite light-tight.

Mr. Hudson objected to the use of indiarubber bands about shutters, and preferred pianoforte wire.

Mr. Gosling thought Mr. Sodeau's camera too complicated.

Mr. Hudson said he thought the weight could be reduced by substituting part of the box by use of bellows over a framework.

Mr. Hankins objected to the Thornton-Pickard shutter, as it gave equal exposure to sky and foreground.

The members then proceeded to summarise a hand camera, and were of opinion that they should have the power of extending time of exposure to any length, being able to use different stops, and focussing on glass.

The Chairman said a beginner ought not to start with a hand camera.

Rotherham Photographic Society.

On Wednesday evening, May 10th, in the St. George's Hall, before a good assemblage of members, Mr. T. Scotton, of Derby, read a paper on the platinotype process, and afterwards developed a number of whole-plate prints by the cold-bath method. The demonstration was most successful, and the resulting pictures were much admired for their artistic as well as their technical, excellence. Dr. Baldwin (President) occupied the chair. On Tuesday, the 2nd ult., the members had under their notice Dr. P. Jeserich's "Detection of Crime" paper.

Bath Photographic Society.

On Wednesday, last week, a special meeting of the Society took place, at the Royal Literary and Scientific Institution, to hear Mr. S. Herbert Fry, of London, lecture on the subject of "Multiple-coated Films." Mr. G. F. Powell presided.

The Chairman said that through the kindness of Messrs. R. W. Thomas & Co., and the lecturer, Mr. Fry, whose name was familiar to every photographer, they met to learn particulars regarding the new plates designated Multiple-coated.

The Lecturer explained the character of the films from a technical point of view, and showed the advantages gained by the use of two or three, or possibly more, successive layers of a sensitive material on the same plate. He claimed that by a suitable arrangement of coatings of different sensitiveness a correct exposure would be obtained, no matter how the operator erred on the side of over-exposure. Again, more detail and brilliancy could be obtained in hand cameras with such films than on the ordinary kind. Blurring, technically known as halation, a bugbear to the satisfactory rendering of interiors, was absent when the multiple coatings were employed. Two very fine series of fifteen and twelve prints were exhibited, all of difficult subjects, which bore out the claims set forth.

The Chairman having thanked the lecturer, a short interval was afforded to explain matters of detail involved in practice.

The first outing of the season, which was to Edington, took place on Saturday, May 27th.

Liverpool Amateur Photographic Association.

On Wednesday afternoon, the 24th ult., Mr. S. Herbert Fry gave a lecture on the "Sandell" plate. He explained the mode of making the triple and double layers of sensitive emulsion; also the advantage in the latitude of exposure, the freedom from halation, and their great superiority for interior work where strong contrasts are present.

The following excursions were announced to take place:—Bebington, May 27th; Bolton Woods, June 10th; Windermere, June 17th; Ingleton, June 24th.

Mr. L. E. Morgan (Fuerst Bros., of London) gave a very interesting and practical demonstration on the new developer, "Amidol," developing a negative, bromide paper, and a lantern slide with excellent results; and he gave a very explicit account of the capabilities of this powerful agent. He also gave a short description of "Metol," and small samples were distributed among the members.

A vote of thanks to the lecturer was carried unanimously.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Repair.—It is difficult to effectually stop the breaking away of the plaster, or so-called plaster, in a jerry-built London wall, such as your studio seems to comprise. Try the following, which is the recipe by which Carton Pierre ornaments are made:—

Glue (ready dissolved in water, but thin) ...	1 pint
Powdered litharge	$\frac{1}{4}$ lb.
Dry white lead	$\frac{1}{2}$ lb.
Plaster of Paris	2 oz.
Sawdust	1 pint

Mix thoroughly and apply while warm.

Omar.—We fear that the daguerreotype left at our office is too far gone to be satisfactorily dealt with. It has been mounted in such careless fashion that the air has had free access to it. Hence the mischief. A strong solution of cyanide is about the only remedy which can be adopted, and we much doubt if that will do any good. We should recommend you to consult some firm old enough to preserve traditions respecting this old process—say Messrs. Negretti & Zambra.

J. C.—The injury to the glass positive is due to slipping of the glass in its frame and abrasion of the black varnish in consequence of the movement. You cannot restore the injury, but a skilful enlarger would be able to get you a fair copy on bromide paper, and would hide the faulty places.

Crank.—Let the solution stand for a few hours before use, when the precipitate will subside, and the clear can be decanted off.

M. J. P.—For diagram copying you cannot do better than use very slow emulsion—such as that used for lantern plates—for your negatives. Most plate-makers would supply you—through a dealer—with plates of any size coated with such an emulsion. With them there is no difficulty in obtaining density. The same remarks apply to most photo-mechanical plates which are made with emulsion of the same description.

Doubtful.—The purchase of a photograph certainly does not include the right to reproduce it as an illustration to an article which you contemplate publishing. Suppose that when published someone were to purchase the magazine in which the article appeared, and were to attempt to possess himself of the copyright without your permission?

N. K.—The gilding on the frame is protected by a thin coating of size. You can remove this with a hot soft sponge, and with it the accumulated dirt, but the size should be replaced. It is made by boiling parchment cuttings in water, and should be filtered before use.

J. J.—It is a matter for you to test by experiment. It is a mistake to assume that all the aniline colours are of a fugitive character, for a large proportion of them are quite permanent—and the colour to which you refer may be one of the latter. Test it by exposure to light while a surface similarly coated is kept in darkness.

Ochre.—The maker's name is sufficient guarantee, but in case the lens should be a forgery, it would be as well to submit it to him for his opinion, which would certainly be freely given.

K. J. A.—While anxious to afford every latitude in this column, we must decline to admit anything in the shape of a veiled advertisement.

C.—We are writing to you by post.

Kerry.—Thanks, but we cannot do so at present.

PATENT OFFICE

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1814. JUNE 9, 1893.

NOTES.

WE have received a short programme of the proceedings which are to occupy the Photographic Convention which meets at Plymouth during the first week in July. Perhaps in recognition of the fact that the members meet as much for pleasure as for business, the list of the excursions which have been arranged has the premier place.

ON July 4 the members will indulge in a steamer excursion to the Yealm and the River Tamar. This is an invitation excursion of the local committee, the Devon and Cornwall Camera Club, the Devonport Camera Club, and friends, to the members of the Photographic Convention. On the same or the following day there will be an outing to Tavistock. On the 6th, excursions to Launceston, Totnes, and down the Dart, Looe, and the Cheeswring. On the 7th, excursions to Lydford, Bickleigh Vale, Dockyard and Keyham, Cattewater; and on the 8th, the last day of what, we trust, will prove a very pleasant week, excursions to Princetown, Ivybridge, and Virtuous Lady Mine.

THE papers to be read comprise the following subjects:—"Recent Developers," by E. J. Wall; "Multiple Films," by S. H. Fry; "Artistic Expression with the Hand Camera," by J. Guardia; "Lantern Slide Making," by C. L. Mitchell, M.D.; "Some Slides from the Marine Biological Laboratory," by J. T. Cunningham, M.A.; "The Special Properties of the Zeiss Anastigmatic Lenses," by Prof. Dr. Paul Rudolph, to be read by Mr. J. Stuart; "Photography in Relation to Medical Record and Demonstration," by A. Pringle; "Some Points in Connection with Development," by C. H. Bothamley; "On the Power of Compensating in Development for Variation in Exposure," by Prof. W. K. Burton.

"BLACK-AND-WHITE ARTISTS," as they are called, are now in such close relation with photography by reason of the various processes by which their works are produced, that camera workers take a natural interest in their doings and fortunes. We are quite sure that all our readers will be glad that the veteran, John Tenniel, has been honoured with knighthood. For forty years this indefatigable and talented artist has contributed cartoons to *Punch*, and has thus come more intimately before public notice than if he had pursued the career which he once carved out for himself as a painter in oils.

ANOTHER black-and-white artist is also just now before the public in a different manner. Mr. Linley Sambourne is exhibiting a fine collection of his quaint drawings at the rooms of the Fine Art Society. The drawings do not carry us back many years, for the reason that it is hardly a decade ago when artists made their drawings direct on the wood to be destroyed by the action of the graver! Photography, as we all know, has been indeed a friend to the artists in stopping this destruction of valuable works.

IT was, perhaps, our recent remarks upon the importance of meteorological photography as a help to weather forecasting that induced a correspondent to send us a sheet of forecasts for the current year, which is entitled "Hugh Clement's Weather Almanack," copies of which, we learn, can be obtained of the Trent Gas Engine Company, Nottingham.

WE thank our correspondent for his courtesy, but we are bound to say that a cursory examination of the sheet confirms us in the belief that photography, or some other help, is more than ever required in this work.

TAKING the month of April—a month this year of phenomenal sunshine and drought—we find on this sheet that two days only are described as "very fine": three are called very fine with some qualification such as "cold"; nine days are called "fine," coupled with the words overcast, unsettled, &c.; while the remaining sixteen days are afflicted with "frequent rain," slight rain, showers, thunder, frost, and other features of ordinary April weather. At the bottom of the list we find a note which is true, but misleading, for it tells us that during the month the rainfall was under the average.

WHILE the uninterrupted sunshine has been very welcome to photographers, and especially to those of tourist proclivities, our plate-makers have been longing for a few showers of rain. Dust is the great enemy of our emulsion workers, and the recent dry weather has made everything so parched and friable that the sunbeams have been too full of motes. In spite of all precautions these minute particles will find their way to the coating rooms, and attach themselves to the plates. Those who find minute specks on their negatives will now know to what cause they are probably due.

THE *Graphic* recently published an instantaneous photographic picture of a jockey being thrown while his horse was in the act of leaping a hurdle. It is not often that the camera man is able to secure such an accident as this. A somewhat similar case occurred during a football match at a large school some time ago, where a photograph served as a recorder of a broken arm.

THE revival of the stereoscope makes but slow progress. English photographers, we imagine, are not yet sure whether there is a sufficient demand to warrant their risking time and material in the production of slides, for although one now and then sees a few exhibited in the windows of photographic opticians and print-dealers, they are of Continental and American production, and somewhat antiquated into the bargain. It is impossible to expect interest to be taken in the stereoscope unless the pictures are up to date.

MEANWHILE there is a trade going on of a sort, and oddly enough in the unfashionable quarters of London. We noticed lately an enterprising East End shopkeeper, who combines the sale of photographic apparatus with that of electrical appliances, making his "leading line" a stereoscope of the well-known Wendell Holmes pattern, which he offers for the modest sum of half a crown. His slides are, of course, American, simply because he cannot get any other. Descending a little lower it may be noticed that the stereoscope is now to be seen on the stall of the itinerant vendor of photographs. We had the curiosity to question one of these humble tradesmen the other day in the Farringdon Road, and he said that he had only taken up slides about two months, but that he had done much better than he expected. It would seem from this that the masses appreciate the stereoscope if the classes do not.

IF a proof were needed of the advantages of dry plates, we have only to turn to the class papers which deal with manufactures. Reproductions of photographs of the interior of workshops filled with machinery, of factories with the operatives busily engaged, are now so common as to excite little remark. Yet such pictures have only been possible comparatively recently. In the days of collodion the photographing of machinery was a task which the photographer always entered upon with a conviction he had got difficulties before him. The heated air dried the film at the corners, the long exposure led to the solarisation of the windows and high-lights of piston-rods and cylinders, the dust spotted the plate in spite of assiduous sponging of the inside of the camera. As for photographing the workmen, the thing was out of the question. With dry plates all these troubles disappeared, and manufacturers have not been slow to avail themselves of the powers which modern photography has placed in their hands. Photographers who lay themselves out for this kind of work have not, we fancy, to complain of lack of business.

ONE would scarcely expect the Admiralty officials to move abreast with the times, but such is the fact in one particular. Somebody has had the happy notion of giving a photograph of a couple of naval stokers, one with his shovel in his hand and the other in his full dress, with a rifle and fixed bayonet, as an attraction to the placards inviting able-bodied men to join the Navy as stokers. The photographs, which are about 12 by 10, are, judging by the background, of home production, but, on the whole, very fair work. Perhaps it is as well that a photograph of the dungeons in which the men work on board a modern ironclad is not also given. We fancy this would act thoroughly as a deterrent.

Apropos, it is rather curious that the War Office was not the first to adopt the idea of giving photographs in this way. It is admitted that the soldier's dress is often the temptation to enlist, and a picture of a smart, good-looking sergeant in full uniform might do much towards getting in recruits. As the camera of late has been very busy among the army, photographs of representatives of the various regiments being now stock saleable pictures, there would not be the slightest difficulty in carrying out the idea.

PATENT OFFICE

THE INFLUENCE OF THE HAND CAMERA.

BY W. D. WELFORD.

(*Concluded from page* 340.)

HERE with the hand camera we have the opportunity of portraying for posterity life — life with its joys and sorrows, its sunshine and shadow, its comedy and pathos. The hand camera can in many cases do this better than the artist, and at all events we can do very much more in a given time. I have on many occasions fallen foul of photographic survey work, especially when any limitations of size or anything else debar hand-camera prints. Because that means the exclusion of life and character, which I firmly believe will have much more interest for future generations than these old mills, river banks, abbeys and castles, churches and public-houses (interior and exterior of each, of course), wandering brooks, &c. These may be stamped with the individuality of the artist; they may have clouds skilfully printed in from another negative; they may show the stream from the artist's house looking south, from the west, from the east, with the artist's house in the distance, and from round the corner; they may be sharp all over or sharp nowhere, but there is no life about them. Certainly, a farm labourer, say, may be introduced into the stream picture, but he will have his best go-to-meeting clothes on, be gracefully posed, and wear an expression upon his face a conjunction of care whether the cow is likely to get into the field, if this operation will keep him later at work, and whether he'll get a copy of the print. We may also be able to show studies of natives taken in the studio, with impossible backgrounds and sitting upon papier-mâché rocks, or standing in the street spruced up for the occasion, carefully posed, erect and manly, wondering what would happen if the show "bust."

After all, is there no art in the portrayal of life and movement? Is there no art in depicting the emotions and feelings by the expression upon the countenance? Are we to shut our eyes to the pathetic or humorous side of living nature? Must all art consist of dead tree-trunks, printed in clouds that run over the trees and landscape as if they were not quite sure just where they ought to be, and streaks of sunlight caught on the spree? Must we produce representations of nature in an intoxicated state, which, as Captain Abney expressed it, "make one perfectly sick to look at"?

No, good army of hand-camera workers, let not your hearts be troubled by this high art falutin. Keep steadily on the way of life and character, which is one of the hand camera's strongest directions of work, and the future will bless you equally with those who portray nature rubber-stamped with their own originality or eccentricity.

I have wandered slightly from my subject, but the influence of the hand camera is, and must be still more, felt in the direction of immortalising the men and women of to-day.

Mental and Physical Influences.—I now come to a somewhat more difficult subject to tackle—viz., the influences, physical and mental, of the hand camera. I don't expect you will agree with me upon some of the points at all, for the reason that, until a man has become a really earnest worker of some experience, these influences can hardly be understood. The hand camera, to my mind, exercises a considerable power of education, both mentally and physically. At all events, I have so found it. As the two points are so interweaved one with the other, it will be necessary to treat them together. The directions I refer to are principally increased speed of artistic perception, improving the vision, and quickness of action and decision. It is, perhaps, true that the class of work principally undertaken by each worker will make this point of less or greater importance. One who goes in for street work or rapidly moving objects will benefit more in these respects than the landscape worker. I still hold the opinion that successful hand-camera workers are born rather than made. Nevertheless, I cannot lose sight of the educational power of actual practice, for, speaking personally, the hand camera has quickened my thoughts and actions to a not unimportant degree. Speed in work and thought in these go-ahead times is not to be sneered at, and I do positively assert that I can work at greater speed, think, and decide more quickly than before using a hand camera. Take the question of focussing rapidly, and, to illustrate it best, let it be tried on a full-size focussing screen upon an approaching object. A few trials will prove how much more quickly it is possible to decide when actually sharp, and to fire the shutter, than it was at first. The whole question of thought and action following therefrom is quickened. To illustrate this, let me mention another capital test, that by electricity at the Aquarium, a test of vision and action. A pistol is held in the hand and a disc is watched. At a certain time a definite object passes this disc, and the task is to quickly fire the pistol, an electric arrangement of a black band registering the time that elapses between seeing the object and firing the pistol. Take any ordinary photographer (he must not be a shooting man, however), pit him against an experienced hand-camera worker, and the difference in the fractions of the second will be startling. Nay, further, let the hand-camera worker first try after a month or two's absence from the camera, and then, second, after he has been with it in the streets that day. He will be struck with the improvement. I therefore claim that the hand camera so improves our vision, our thoughts, our actions in the direction of speed, as to materially alter even a man's character. He decides and performs the result of the decision more quickly. He becomes sharp, prompt, and decisive, and past hesitations vanish. The hand camera therefore has considerable influence in altering the mould of the man.

I am ready to admit that the second division of influences may not appear of very much account, but am, nevertheless, convinced that, even if that is so, it is because I have not the ability to put these considerations before you properly. They wander afield somewhat from photography into other domains of study, with which I cannot claim much acquaintance as yet.

In conclusion I claim for the hand camera the following points :—(1) Increasing speed of plates ; (2) improving apparatus generally : (3) causing greater attention to small work ; (4) increasing the number of photographers ; (5) naturalness of posing ; (6) aiding illustrated journalism and the study of life and character ; and (7) improving mental and physical action.

The paper is no weak-minded, cover-all-the-ground sort of attempt, but may almost be termed a fighting one. It is not hedged in with "buts" and "perhaps" and admissions or concessions, so as to prevent discussion or criticism. I have said what I believe and what I am prepared to defend from any honest enemy. And in that spirit I offer it to-night in the words of Hamlet :—

"Our thoughts are ours ; their ends none of our own."

—*London and Provincial Photographic Association.*

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PHILADELPHIA'S SHARE IN THE DEVELOPMENT OF PHOTOGRAPHY.

BY JULIUS F. SACHSE.

(*Concluded from page* 343.)

IN connection with this venture the following card appeared in the *Public Ledger*, during December, 1855 :—

"*Langenheim's New Series of American Stereoscopic Views.*—We, the undersigned, who by subscribing and furnishing F. Langenheim with the means to commence a new series of American stereoscopic views between Philadelphia and Niagara Falls, have received the number subscribed for, and take pleasure in expressing our entire satisfaction with them, and would recommend them to all who have a desire to cultivate a taste for their own American works of art and skill. They are also coloured with much taste and truthfulness to nature.

[Here follow the signatures.]

"*A Card.*—The new series of American stereoscopic views alluded to in the above testimonial were taken in company with the subscriber upon a recent trip to Niagara Falls along the south route of the Reading, Catawissa, Williamsport and Elmira Railroad to the Falls, with the addition of about twelve very interesting views of scenery in the coal regions near Potsville on the Mine Hill Railroad.

"These pictures are soon to be published upon glass and porcelain by an entirely new process. They are also to be published in a cheaper form upon albumenised paper, and may be had at the publication office of William Lloyd, 188, Chestnut Street, Philadelphia.

"The paper views will be sold in book form, and ready for sale on Friday at Cowperthwaite & Co., under the Masonic Hall, and Parry & McMullan, Fourth and Chestnut (December, 1855)."

A complete set of these early views of Philadelphia, either in hyalotype, lantern slides, or stereoscopic prints, would be of great interest at the present day. An earnest search by the speaker, however, has failed to bring to light any but a few scattered specimens of Langenheim's scenic efforts.

I think that sufficient has been shown in the preceding remarks to prove that Philadelphia scientists from the very start have played an important part in the development of the photographic art-science, and that our fair city may well be called the birthplace of photographic portraiture as well as the mother city of modern photography.

In the development of the dry-plate industry Philadelphia also stands in the advance, the first commercial dry-plates in America having been made in this city. The reputation of Philadelphia dry-plates and films is known throughout the photographic world.

In scientific research, it is but necessary to mention the names of M. Carey Lea and Frederick E. Ives, both, I think, members of this Institute ; the latter being the inventor of the well-known half-tone process which bears his name, and more lately of a method for the projection of views in the colours of nature by strictly photographic means.

That in our generation the artists and professionals of our city have not deteriorated is shown by the splendid achievements of Gutekunst and others of lesser renown, all proving themselves photographic artists second to none in the country.

In connection with my subject, I will also call attention that the first negative of a flash of lightning ever taken was made by Mr. W. N. Jennings, a member of this Society, September, 1882, proving the fact that the electrical discharges from the clouds were wavy and not zigzag. This peculiar branch of scientific photography, since its feasibility was shown by Mr. Jennings, has developed into a wide-spread study. One of the most interesting results obtained by Mr. Jennings is the proof that lightning is oscillatory in character, by a series of fine photographs taken from a moving train, while crossing the prairie of North Dakota last summer.

In conclusion, I will call your attention to a few of the earliest heliographic experiments, contrasting them with the latest advances of the present period ; these specimens will show the great strides which have been made during the past half a century.

LIST OF SPECIMENS REFERRED TO IN THE LECTURE AND EXHIBITED.

(1) Facsimile of Saxton's first effort at the Mint of the United States, October, 1839. Original deposited with the Historical Society of Pennsylvania.

(2) Contrast. An Ives heliochromoscope, showing the latest and highest development of the photographic art in the reproduction of the colours of nature.

(3) Facsimile of the first portrait of the human face by any heliographic process, made by Robert Cornelius, November, 1839.

(4) Comparison : a portrait of the present day, made by Fred'k Gutekunst.

(5) Facsimile of the first studio portrait, by Robert Cornelius, February, 1840.

(6) Facsimile of the first instantaneous local views ever placed on exhibition or for competition, by Joseph E. Parker, March, 1840.

(7) Specimen of the earliest daguerreotype by the use of bromine, by Mr. Paul Beck Goddard, December, 1839.

(8) Facsimile of the first photo-mechanical reproduction, made by Joseph Saxton in 1841.

(9) Specimen of the latest development of the photo-mechanical processes.

(10) Specimen daguerreotype for which Philadelphia became renowned, by Marcus A. Root.

(11) Specimen of earliest paper negative made by Francis Schreiber, Philadelphia, 1847.

(12) Contrast : a negative on flexible celluloid film.

(13) Specimen of photography or talbotype made from a paper negative about 1847. This is one of the earliest efforts at positive photography.

(14) Photograph, view of Fairmount Water Works. One of the earliest positives made from a glass negative. Made for exhibition at the World's Fair, London, 1851.

(15) Portrait of Joseph Saxton.

(16) Portrait of Frederick Langenheim, a talbotype from paper negative.

(17) Portrait of Francis Schreiber, the veteran photographer and co-worker with the Langenheim Brothers, at the age of ninety-one years.

(18) The complete studio outfit of Dr. Paul Beck Goddard, as used by him in 1840.

RETOUCHING.

BY ERNEST C. MORGAN.

(*Concluded from page* 348.)

BUT even if there was no colour to deal with, although the tonality of photographs of most subjects would be very much improved, it would be very far from perfect. It may be possible to make a negative from a subject in monochrome in which the tones shall have true value, but it is extremely difficult, and depends on the exposure being timed with great accuracy and the development being carried on with the greatest skill. If it is under-exposed the tone will be hopelessly extended and grades lost at both ends of the scale, some being smothered in the shadows and others lost in the lights.

Again, take the form of an object in its simplest expression as shown by its outline. Here we have no colour to confuse the form, and the shape does not depend on gradations of tone ; but even under these simpler conditions we are not sure of getting an accurate representation by photography.

There is the distortion of the lens to be taken into account, and in an object having much depth the front or part nearest the lens will be of an exaggerated size compared with the part more remote, especially when the lens used has not much depth of focus.

I have reminded you in this way of some of the shortcomings of a photograph, because, unless it is clearly seen how imperfect a photograph must necessarily be, there is no excuse for meddling with it. But whether you photograph landscape, figure, or portraits, you will seldom take a negative that could not be considerably improved by retouching. For portraiture it is, indeed, absolutely indispensable, and the professional portrait photographer owes his very existence to it. Before it was understood that a negative could be worked upon freely and successfully with a lead pencil, portraits were almost invariably taken of small size, generally of full length with tiny heads, too small to show the imperfections, and photographs of this period are generally found to have been clumsily posed full length C.D.V. size.

The advent of retouching brought an immense extension of business to the photographer. Now large heads are generally made almost in the other extreme, and there is not a photograph sent out by any photographer of repute that is not from a negative that has been through the hands of the retoucher, and generally to its great advantage.

Let me draw your attention for a moment to an example I have here ; it is not an extreme case, but it will serve. It is a negative I picked out from only a few I looked through, and is an everyday subject with the retoucher.

The lady is not suffering, as she appears at first sight to be, from the ravages of some fell skin disease. You will notice she has rather a pleasant smiling expression not appropriate to one in pain. It is in fact nothing half so serious ; she has merely been out in the sun, or has used the wrong soap, the one that is *not* matchless for the complexion, and has got a few freckles—slight imperfections barely apparent to the eye, but which are maliciously rendered by the lenses as great blotches and splashes having a perfectly horrifying aspect. I have retouched the negative and made another enlargement from it, and I think you will agree that it is not only a more pleasing portrait, but also much more convincing as a likeness.

The retouching is not flattery, it is an act of simple justice. I will willingly acknowledge that, like all useful things, the practice of retouching can easily be carried to excess. It must be confessed that it is often used in such an illegitimate manner as to call down upon the art sharp and well-deserved criticism.

A fashionable photographer will think nothing of carving away a substantial piece of a lady's waist if it is not in the same proportion as that of a figure on a fashion plate. He will straighten a nose as a matter of course, if it happens to be a little too *retroussé* or pronouncedly Roman, tint grey hair, and entirely eradicate wrinkles and marks of age of all kinds.

The cost of the materials necessary for retouching need deter no one from commencing. A penny pencil, or if price is no consideration, and you are inclined to be luxurious, say a fourpenny Faber or Hardmuth ; some arrangement in the nature of a retouching desk to support the negative, and a little medium that can be made up for a few pence, is all that is absolutely necessary.

The pencils I generally use are Hardmuth, HH or HHH leads in screen holder ; these or Faber's best pencils are very even and free from grit, and take a very fine point without breaking. They may be obtained in almost any number of H's according to hardness, and perhaps a beginner would find it easier to get on with a rather harder pencil at first; but a softer pencil saves time when the touch has become light enough to use it.

When you have got the right sort of pencil, the next thing is to get the right sort of point on it. This is one of the first difficulties of the beginner. An extremely fine point is absolutely necessary for such delicate work, and it is worth taking pains to obtain. I make a point about an inch or rather longer, tapering down regularly from the thickness of the lead to the sharpness of the finest pointed needle. The quickest way to sharpen is to rub down first with fine sand paper and finish on a piece of ground glass or opal glass. The gelatine or varnished surface of a negative is too smoooth to work upon and offers no bite to the pencil: it is necessary to prepare it in some way. To my mind the most comfortable surface to work upon is obtained on a good hard varnish by grinding the surface with pumice powder. This gives a luxurious surface compared to the usual surface given by a medium.

The varnish must be fairly tough and well baked after negative is varnished. The grinding down must be done with some care, or there is a danger of scratching or cutting a hole in the negative, especially if the pumice is not fine and free from grit.

A little of the pumice should be taken on the tip of the finger and rubbed carefully on the parts to be worked upon. With a little practice any surface can be obtained to suit the subject, from a rough surface with a tooth like drawing paper, to a fine surface that will only take the pencil in light fine strokes. I much prefer this surface to any other I have tried, but it has unfortunately a serious drawback, the density of the part rubbed down is very slightly increased. In retouching a face the very slight increase in density is generally imperceptible, and when the negative is thin may be a positive improvement. When the face to be retouched is already on the dense side it is better to use a medium.

There are a number of suitable mediums sold for the purpose. The medium I generally use is made of one drachm of powdered resin to two ounces of turpentine; it is very easy to make, and answers as well as any other.

The disadvantage of mediums compared with a surface prepared with pumice is that they are generally more or less tacky and tear off the fine point of the pencil, and the bite cannot be regulated so conveniently.

However the surface is prepared it will not take the surface freely enough to bring up quite transparent places in the film to the density of the lights; and when very transparent places have to be dealt with, such as holes in the film, dust spots, and other similar defects, it is best to get them as well covered with the pencil as possible, and strengthen to full density with water colours mixed to match the tint of the negative, stippled on neatly with a fine brush.

A retouching desk is required to support the negative in a convenient position while retouching. The desk should be firm and capable of being arranged at an angle, so that the light may be reflected through the negative from a reflecting surface arranged beneath. Desks sold for the purpose generally have a mirror for reflecting the light; but unless the light is very weak it is reflected too strongly by a mirror, and white paper makes a much better reflector and has more mercy for the eyes. A good desk will be fitted with frames to hold different sized negatives and a hood to screen the eyes of the retoucher from light other than that passing through the negative.

When we have these few requisites we are ready to commence.

I propose now to show you as well as I am able the usual method of retouching a portrait head with pencil, and afterwards I propose to call your attention to retouching methods more suitable to landscape photography. It is a very difficult matter to illustrate portrait retouching to an audience, and I am trying a novel way. I have here a negative bromide enlargement of a head to life size; that is, an enlargement made from a positive transparency instead of from a negative.

It is a choice subject from a retoucher's point of view, and I am sure that the need of retouching is perfectly obvious to everybody who can see it. I am afraid I should exhaust your patience if I tried to retouch it in anything like a finished manner, but if you can bear with me for a few minutes, and imagine it is a negative of a small head and that you are looking *through* instead of on to it, I will show you how I should commence it. When it is necessary to retouch a landscape negative the need for working upon it is generally from the same causes that call for retouching in a portrait—viz., the modification of tone by colour, the defective rendering of gradations of tone through under or over exposure of whole or parts of the negative, or faulty development, distortion by the lens, &c.

The method of working is, however, different in landscape: it is generally necessary to deal with larger surfaces. The delicate niggled work of the pencil must be exchanged for something broader. The most useful retouching when broad patches are required to be lightened or darkened, such as an under-exposed foreground against an over-exposed distance, is done on the back or glass side of the plate with the stump, or with coloured varnishes, or with colour applied with the brush.

There are great advantages in working on the back of the plate; there is no risk of spoiling the negative, as any work put on, if not satisfactory, can be wholly removed or can be worked upon or corrected by scraping with a knife; and, besides the retouching being separated from the printing surface by the thickness of the plate, prints softer and permits of rather coarser working.

Suppose we have a tree trunk in a foreground which is rather under-exposed, and which, before the distance and denser parts of the negative are printed, has darkened into a black stripe without shape or rotundity, it is an extremely easy matter to work upon it from the back of the negative, and make it print as light as desired to bring it into proper tone with the rest of the picture. This can be done by coating the back of the negative with matt varnish and covering it with *papier minerale* (a transparent paper sold for the purpose), and stumping a tint over it with lead. If, however, it is necessary to make a very decided alteration, sufficient density cannot be got with the lead: but with tinted varnish a black object can be modified to numberless tints, to white if necessary.

The varnish may be made up with collodion, and thinned with ether and tinted to the required density with a few drops to the ounce of a strong solution of aurine.

Pour it over the back of the plate so as to cover the part to be modified, and as soon as it is dry scrape it away where it is not required. The same plan may be adopted to help parts of a negative too dense to print. Take, for instance, the gleam of sun on water; very frequently the negative will print with a hard white chalky light, omitting altogether the delicate tones that approach the high light. Although they are apparent in the negative, the picture would be over-printed before they were printed out.

If, however, the negative is varnished all over the back with a suitably tinted varnish, and the varnish over the light removed by scraping with a knife, the difficulty would be overcome. This method of treating a negative is extremely simple, and I think can be used with great advantage and effect by every landscape photographer. I do not mean in order to make poor negatives presentable, but there is hardly a negative produced that could not be made more truthful and more beautiful by judicious and intelligent retouching. It puts in our hands a power akin, although remotely, to the painter's, who can arrange the tones of his picture according to his feeling and judgment.

In conclusion, I have to thank you for the attention you have given me. I have tried to present the subject in such a manner that those of you who have been deterred from practising retouching, either through doubt of the advantages of the work or of its supposed difficulty, may be induced to make an attempt to master it, and may have the information necessary for a proper start to be made.

If I have omitted any detail of the subject necessary to know, or any further information is desired on the points I have mentioned, I should be very pleased to supply it in answer to your questions.

IVORYTYPES.

BY GEO. G. ROCKWOOD.

RECENTLY, in overhauling my establishment, I unearthed some ivorytypes which were made fully twenty or twenty-five years ago. They were in such a fine state of preservation, and make such beautiful and permanent pictures, I am about to revive them.

As many of the fraternity don't know how to make these pictures, I send you a description of the methods used. I think they will be a good thing to reintroduce. Many fine styles of pictures have had their "day," and have been dropped for some novelty—often, I think, unwisely. The ivorytype is one of the illustrations of this tendency. It is no step backwards to make them.

Process.—*First.*—Make a print on plain paper, strong and brilliant; now edge a common clean glass to the width of a quarter of an inch with glue or starch; dampen your print a little and put it on the glass, picture side up. When dry, the print will be stretched nicely on the sheet of glass. The glass should be a little larger than the desired picture, for the reason that when coloured and completed it is cut off from the glass. Having your print in this condition, stretched on the glass, it is to be very brilliantly coloured in water-colours; altogether the picture presents a dark, strong, brilliant effect. Lay this, glass and picture, upon a flat slab of soapstone — of course, the picture side up—and gradually heat the soapstone on a gas or oil stove until the plate is hot enough to melt wax. Now break a cake of white wax (not paraffin) in two, and rub the surface of the picture with the wax, which gradually melts and saturates the picture. Your picture at this stage looks very much like a "gone goose." Now cut it very carefully at the edge with a sharp knife and lift the picture off from the glass; you will then have a translucent picture. Now heat a sheet of white *plate* glass in the same manner as you did the other, and when hot lay your wax, *face down*, upon the glass; it will soon melt and adhere to the glass. With a piece of wax (the sharp edge of the wax used as a squeegee), rub out the air bubbles; so soon as this is done, pick up your glass and let it cool. Now put drops of wax around on the picture to keep the cardboard from absolute contact with it, and put a piece of cardboard behind it, and you have the prettiest picture on earth.—*Anthony's Photo Bulletin.*

Photographic Convention.—The following circular has been issued by the Executive:—In connection with this year's Convention, to be held at Plymouth, from July 3rd to July 8th, an exhibition of photographs, photographic apparatus and appliances, will take place at the Art Gallery attached to the Athenæum Buildings. The charges for wall space will be 3d. per square foot, with a minimum of 3s.; and those for table or floor space 6d. per square foot, with a minimum of 5s. Intending exhibitors will kindly apply for space to the Hon. Sec., Mr. F. P. Cembrano, jun., 10, Cambridge Gardens, Richmond, Surrey: or to the Hon. Local Secretary, Mr. R. Hansford Worth, C.E., 42, George Street, Plymouth, stating the nature of their exhibit and space required. All applications must be accompanied by a remittance for the amount of wall or table space desired. Exhibits should be delivered, carriage paid, and addressed "To the Hon. Secretary, the Photographic Convention, the Athenæum, Plymouth," not later than ten o'clock on the morning of Saturday, July 1st. The Executive, while exercising all reasonable care and supervision, will in no way accept any responsibility for any loss or damage to exhibits either on transit or during exhibition. Exhibitors may have an attendant present to look after and explain their exhibits.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, JUNE 9, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PHOTOGRAPHS FOR HALF-TONE BLOCKS.

THE production of process blocks from photographs and from drawings now represents a vast industry, as must be apparent to anyone who reads or only glances at the multifarious periodicals which represent the most popular form of modern literature. There is no publication, indeed, which professes to give its readers illustrations that does not mainly depend upon these blocks, which either take the form of simple zincoline-work productions, or the more elaborate blocks produced by means of lined screens, which are known under the generic name of *Meisenbachs*. It is to these latter to which we now more especially call our readers' attention, and more particularly to the best kind of photographs and the best way of preparing such photographs for reproduction in block form.

It is patent to all that a great many of these blocks give most disappointing prints; perhaps it is not too much to say that, by reason of the conditions under which reproduction is rendered possible by them, the printer's impression can never bear any comparison with a good silver print obtained from the parent negative. The circumstance that the picture must be cut up into mechanically ruled lines forbids any actual approach to the beauty of the original, and such blocks must always appear flat and of uniform regularity of tone in comparison with that original. An exception may be made in the case of a wash-drawing executed by a skilled artist, who thoroughly understands the limitations of half-tone blocks, but we are now confining our remarks to photographs.

Much can be done in improving a picture before it is placed in the reproducer's hands, and to this phase of the subject we will now direct attention. Most half-tone block-makers prefer to work from a good bold silver print. (Possibly, this is because they are in the ordinary course of business most often called upon to make blocks from this description of picture, although for many reasons a transparency would seem to be more satisfactory to work from.) This print should have about it plenty of contrast, and should be as far removed as possible from one of those nearly grey productions which are the result of over-exposure. Should it not possess the necessary "pluck," it can be very readily improved by a few touches with pencil or brush, provided that the worker knows how to use these simple tools. We have before us as we write a photograph which has been specially prepared for block-making, and perhaps its history will be of some use in showing how difficulties can be surmounted in this particular field of photographic industry.

The original negative was of quarter-plate size, and was of an architectural subject—a Gothic building containing windows and mouldings innumerable. This negative was poor and thin in quality, and gave one the idea that in the effort to secure the whole of a very large building on a very small negative, the photographer had not taken into account his distance from the object, and the veil of atmosphere which separated him from that object, and had over-exposed his plate. Be this as it may, the print from this negative was of that unsatisfactory kind against which we have already warned the reader, and from it it was quite impossible to get anything but an unsatisfactory block.

Now it is known to all men that such a poor negative as we have described will, in competent hands, give a good enlargement; and, therefore, the first thing to be done was to enlarge the picture, and a piece of smooth bromide paper, 15 by 12, was the medium employed. Every detail was duly brought out in this enlargement, and the picture was about as good as it could be considering its origin. But it was not good enough for the purpose of the process block-maker: and now, therefore, came the work of brightening up and giving it that force and contrast which it lacked. The faint clouds were first of all made more definite by deft touches of Chinese white, taking care that the pigment was so massed near the prominent sky portions of the building as to throw them into relief. Then, with a dark pencil and ruler, windows and mouldings had their shadows accentuated. In like manner lines that were light, such as coping stones, window ledges, &c., were very sparingly touched with a drawing-pen charged with liquid Chinese white. A few heavy shadows in the foliage which was about the building were deepened with the black pencil, an obtrusive out-of-focus boy in the foreground was wiped out of existence, and, after one or two minor points were attended to, the enlargement was ready for the process man. In due time the block was finished, and the photographer was obliged to own that it gave a better result than he could obtain from the original negative. Subsequently, from the enlargement, a new negative was made of the original quarter-plate size, and many copies on silver paper were printed from it, without anyone detecting the method of production.

It will therefore be seen that a bromide enlargement from a thin negative is not only useful as a convenient means of obtaining a positive for process-block work, but is also a valuable means of obtaining a new negative should the original be unsatisfactory or be destroyed.

PHOTOGRAPHY IN AUSTRIA.

BY E. VON GOTHARD.*

The Advantages of Spectrum Photography in the Study of Heavenly Bodies of Weak Illuminating Power.

THE great advantages afforded by photography in astronomical research have not by any means been exhausted. In a comparatively easy manner it is possible to attain surprising results, which would otherwise remain hidden from the human eye. Simply photographing the heavenly bodies, or whole regions of the sky, opens up to us quite a new field of view, discovers new stars, new nebulæ, &c. But pictures taken with a spectrum apparatus far surpass these in scientific interest, as the region opened up to the eye by photography is almost wholly a new and strange one.

In the following lines I will recount some interesting results achieved by me with photography recently. For years I had wished to be able to photograph a comet spectrum, but could not till the first days of April, 1892, when, in three days (the 9th, 10th, and 11th), with four hours' exposure, I obtained the spectrum of the comet Swift. For the sake of comparison, I took the Bunsen burner spectrum on the same plate. As far as the fourth band (473—467 *mm.*) the spectrum is identical with that of the compounds of carburetted hydrogen, but from there onwards appear new unknown lines and bands (which are wanting in the spectrum taken for comparison) to the close of the spectrum, with very light carburetted hydrogen bands (389—387 *mm.*). These, again, are not identical, but quite similar to those which appear so characteristically in the carburetted hydrogen spectrum. Therefore, in the case of the gaseous veil of comets, we have to do with a compound of carburetted hydrogen, having, however, a composition different from that of our coal gas, which has different physical conditions (pressure, heat, &c.) from those occurring in the Bunsen flame.

I obtained other interesting results with a beautiful large objective prism, which had been ground in a masterly way by Herrn Pauly, the manager of a factory, for Herrn von Konkoly. The kindness of the latter, my friend, enabled me to complete some studies planned years ago, which I will here briefly describe.

After several preparatory studies, I usually took the spectrum of the ring nebula in that position in which looked at with the eye it consists of a bright line, but there being no slit in connection with the prism, I expected to obtain several rings corresponding to the bright lines. And so it happened. My picture, taken with an exposure of three and a half hours, shows six rings of different brightness, of which the extreme ultra-violet one is the brightest. This is the reason why the nebula has such great chemical effect that, despite the weakness of its light, it produces vigorous pictures in a comparatively short time.

With the so-called "dumb-bell nebula" I obtained a picture as if no prism had been inserted, which showed all the details of a direct photograph.

I have taken star spectra of faint luminosity to great advantage, absolutely unknown regions appearing, which, without the objective prism with ordinary spectrographs, could have been taken only with the most powerful instruments in the world.

The application of the objective prism is not new. Frauenhofer used it in his immortal investigations. At the observatory at Cambridge, in America, it is now used for photographic spectrum studies, and there even a star catalogue has been prepared with it. It seems to me that in Austria it is rather under-valued; its power in examining objects of faint luminosity appears to be wholly unknown.

Its only drawback is that no comparison with earthly materials is possible, because the prism is placed immediately in front of the objective of the telescope, so that the instrument has no slit. But it is always possible to identify some lines in the spectrum, and thus to obtain a connection for measuring the unknown region.

* * *

Paris-Photographie contains this month some irresistibly comic photographs representing the phases of a poodle's jump over a hurdle. The poodle is of the black (Russian) variety, with half his body shaved in the style approved by connoisseurs. The process blocks from which the pictures are printed are so good that at first sight we thought they were collotypes.

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* From Dr. Eder's "Jahrbuch," 1893.

A CYCLING TOUR IN BRITTANY.

BY LOCKE MACDONA, B.A., OXON.

HAVING with three others enjoyed a very pleasant cycling tour in this most interesting country last summer, and having brought back some mementoes of the visit in the form of snap-shots, some of which the Editor has kindly undertaken to reproduce to illustrate our trip, I proceed to describe our route for the benefit of fellow-photographers and cyclists who may possibly be inclined to spend a fortnight in the same way. I can only say, if they once do so, they will be so charmed, that they will want to pay it a second and even a third visit, as I myself am looking forward to do this year, having gained, I hope, a little experience from my photographic failures which I will detail for the benefit of others.

OLD HOUSE AT LAMBALLE.

The four of us rode solid-tyred safeties. I was the only photographer, and carried my Shew's Eclipse and roll-holder in a canvas satchel slung between the frame of my machine, where it remained without any damage or mishap during the whole of the trip. Two of us left for St. Malo (our starting point) three days before the remaining two, who were to join us on the Tuesday morning following, we having left Waterloo on Friday night. After a fine passage of about twelve hours we landed at St. Malo; and here let me warn cyclists against going by that route, for the extreme inconvenience and annoyance and loss of time we and other cyclists experienced getting through the Customs we shall not soon forget, and in future will choose either Cherbourg or Havre, where the officials politely allow you through on showing your return ticket and your C.T.C. badge. Before I commence to record our wanderings, I must identify my three companions in order of age as A., B., and C. A. was a jovial parson of merry wit and athletic build. B. was a young barrister who cared more for cricket than the law. C. was a clerk in the Bank of England, and, being much our junior, was dubbed "La Jeunesse." After an elaborate *déjeuner* at the palatial Hôtel Franklin on the Quay, C. and I started for Dinan, by way of St. Servan, the town adjoining St. Malo, *viâ* Chateauneuf. The road is only fairly good, but quite rideable. We reached the delightful old town of Dinan about 6.30, and put up at the Hôtel du Commerce, where we were very comfortable, and the tariff 7f. 50c. a day. We here fell in with a very jolly companion, a young parson from Clifton, who had just finished a three weeks' tour, and who waxed enthusiastic about the charm and interest of West Brittany. He had a camera of the press-the-button type, and had fired off a good many shots, and was anticipating a glorious time over the developing dish. Next day being Sunday, we first fulfilled our religious duties at church, and then explored the town, and I took about twenty-four views, some of the delightful old timbered houses making charming pictures; also a general view of the valley and River Rance from the lofty viaduct, and several of the pretty bridge spanning the river below, with the groups of barges near it; and three or four plates exposed on that quaintest of old streets, the happy hunting-ground of the artist, the Rue Jerzual, completed our first roll of twenty-four.

After *déjeuner* we took the train to St. Sampson, a hamlet three miles from Dinan, and a walk of ten minutes from the station brought us to a fir plantation, where we came upon a "menhir" of druidical origin, about twenty-five feet long, half buried in the ground at an angle of forty-five degrees. Not having a stand, and wishing to get a negative of it, we extemporised a stand of dried mud blocks which were handy, and, capping it with a straw hat, placed the camera on it, and got a very fair negative with an exposure of four or five seconds. On returning by road to Dinan we took some snap-shots of children and maidens returning from church, and also of an old dame with a calf, which, as she had never been taken in her life, mightily pleased her. We subsequently sent her a print of the negative.

On Monday morning we bade adieu to our pleasant companion from Clifton, as he had to catch the boat back to Southampton, and C. and I rode to

Dinard along a bad and uneven road, taking one or two snap-shots of *blanchisseuses* at their washing by the roadside. A commercial gentleman at Dinan recommended us to the Hôtel des Bains, but we regretted staying there, as their charges were a good deal higher than the Hôtel de la Vallée, which is certainly the best and most moderate hotel in Dinard, and having stayed there on a former trip I can strongly recommend it. Next morning we crossed to St. Malo by the hourly ferry boat, fare 20c., and in ten minutes were welcoming A. and B. landing with their machines. We took *déjeuner* at the Hôtel du Commerce in the town, and crossed the ferry to Dinard. We left there about 3 p.m. for Lamballe (thirty miles), where we arrived at 8 p.m. Next morning we strolled around and visited two of the churches, Notre Dame and St. Martin, the former dating from the beginning of the 13th century, and built on an eminence from which a magnificent view of the surrounding country is obtained, the latter of the 11th century, and possessing a very picturesque old lych-gate which is well worth a plate. There are some old houses of photographic interest, one of which I took a hand-shot of; and here I may say that for this work a swing-back and stand are essential, as the camera has to be tilted on nearly every occasion, with, in the case of buildings, the result that every photographer knows. The best one can do in this case is to make an enlargement from the negative slightly out of the vertical, so as to effect a compensation. This plan works well. Next morning, we started early for Guingamp, thirty-one miles distant, *viâ* St. Brieuc (twelve miles); the road is good. There is a tremendously long hill on entering St. Brieuc, which we walked up, and which took us about three-quarters of an hour. St. Brieuc is an important and interesting town, being the chief town of the department. Again we had to find fault with our resting-place, for at the Hôtel Croix Rouge, on the left on entering, we were charged five francs for a plate of plums and some biscuits and three *carafes* of cider, which we considered rather "tall," as the Americans would say.

PATENT OFFICE LIBRARY

OLD MILL AT ST. BRIEUC, NEAR DINARD.

In the meantime I took some views of old houses. The most picturesque ones are situate in the Rue Fardel and the Rue Gouet—quaint narrow streets; but here, again, to get good results a stand and swing-back are required. As an exposure of one or two seconds was required, I rested the camera on window ledges, and so got the houses quite sharp. Two exposures on some gendarmes being drilled in the square completed my lot in this interesting town. Guingamp was our next town (about nineteen miles); the road is good, and happening to excite the envy of a Frenchman driving a trap, there was an international race for about two miles. He got very angry, and lashed his unfortunate horse in a frantic attempt to head us, but the four of us left him a good deal astern, and much chagrined at his defeat.

The Hôtel de France at Guingamp made us very comfortable, and we can recommend this hostelry very strongly. We rose at 6.30 and went out to see the "objects of interest." Notre Dame de Bon Secours is a very fine 14th century church, with a richly carved west porch flanked by two towers. There are also two magnificent Gothic porches, which I lost through my roll-holder sticking most perversely, and an ancient fountain with some old houses in the Place de la Pompe. We were told at the hotel there was very good fishing here in the River Trieux that runs through the valley in which the town is situate. We left Guingamp at 8 o'clock, along a very good road, and reached Belle-Isle-en-Terre (eleven miles), a pretty village at the base of a long and gradual descent which we "coasted" with much satisfaction. From here the road is about as bad as they make them, very loose and hilly, reminding one of a switchback, fully justifying the epithet that a priest we passed applied to it, "terrible." But our purgatory was over after about seven or eight miles, when a hamlet named Plounérin was reached, where at the "Rencontre des bons amis" we were made exceedingly comfortable by our host Lahellec, who catered for the cyclists in the great Paris to Brest race. Not being prepared for such a sudden visit, he mounted a steed and rode off to procure our meal, and shortly returned with a plump *poulet*, which madame cooked and served in an incredibly short time; and this, with an excellent omelet, and some first-rate white wine, made us at peace again with all the world, the charge being the very moderate one of 2f. 50c. each. We wrote him a testimonial, and after a hearty hand-shake reluctantly bade the genial couple good-bye, and reached Morlaix (about sixteen miles further) late in the afternoon. Morlaix is a fine town with many old houses, some of which I secured in my camera. It is the second imporant town of Finistère, by far the most interesting department of Brittany. It lies in a valley, and is spanned by a lofty and very imposing viaduct, somewhat similar to the one at Dinan, 200 feet high, which divides the town proper from the port. The origin of the name is said to be the very unapostolic precept, "S'ils te mordent mord-les" (if they bite you, bite them). We left Morlaix for St. Pol de Leon about six, after taking the precaution to wire for dinner and beds, which, when a party of four are travelling, is very advisable. We had a pleasant ride to St. Pol in the cool of the evening, and put up at the Hôtel de France; and, as they were full of visitors, we were allotted quarters in the vicinity. Our charges here were also very moderate, being six francs each for an excellent dinner, bed, and breakfast. St. Pol is a small town half a mile from the sea. At a distance it looks like an immense church, being on an eminence, and its churches and convents being the chief objects discernible. It is called after a bishop of that name, who founded in the 6th century most of its religious establishments. The Cathedral is a very fine and imposing edifice, partly of the Norman period and partly of the 13th and 15th centuries. It has two fine towers, surmounted by very graceful and lofty spires. The Church of the Kreizker dates from the 14th century, and possesses a most beautiful porch in the Flamboyant style, and a very elegant and lofty spire. There is a wide field for the camera in this most interesting town.

ON THE QUAY AT ST. MALO.

(*To be continued.*)

* * *

THE *Fox Terrier Chronicle*—we were ignorant until now of the fact that this popular dog had a newspaper to see after his interests—has just entered upon a new series. One feature of the paper is the publication of Meisenbach blocks of dog life, and the number now before us contains two very good examples, one from a painting and the other direct from a photograph.

LAW CASES.

AT the BROMLEY PETTY SESSIONS, on Monday, Charles Taylor, photographer, of Chislehurst, brought an action against George Cripps for £7 10s., as damages done to a camera.

The complainant said he had been a photographer for twenty-five years, and he lived at Chislehurst West. When the damage was done to the camera it was standing on the green near the Crown Inn, and defendant's pony and cart were close by. P.C. Shepherd remarked to Cripps: "Three to one you can't knock Taylor's camera over and smash it."

The Chairman asked what the bet was in, and complainant replied, "Whisky, which they had been drinking all the morning. The three 'goes' of whisky were to be 'threes,' as defendant never drank anything less." (Laughter.)

Witness, continuing, said Cripps then got into his cart and said: "Shall I run through it?" Shepherd replied: "Three to one you can't." Cripps shouted: "Take that bet," and went for it and knocked it over. (Laughter.)

He won his bet, then?—Complainant: Yes, and broke my camera. (Laughter).

And they went and had the whisky afterwards?—You bet. (Laughter.) Shepherd then got some shoemaker's tacks and wanted to mend the camera with them, but witness declined to allow him. Witness claimed £4 10s. for the camera, and £3 for loss sustained through being unable to work. He had used the camera for twenty-six years. When he purchased it he gave £4 10s. for it, but now it was not worth fourpence, as it let the light in all over. (Laughter.)

Replying to further questions, complainant said he could get the camera repaired for £3.

The Chairman (Mr. S. P. Low) said complainant ought only to have claimed £3. He could not claim for loss of work.

Mr. Gregory, who appeared for the defendant, took a technical objection to the summons, which was upheld by the Bench, and the complainant was informed that the summons must be dismissed.

Mr. Latter (clerk to the Bench) said his clerk told the complainant to take his case to the County Court, but he declined to do so.

Mr. Gregory having no objection, the summons was amended, complainant reducing his claim to £3, and the case then proceeded.

Cross-examined by Mr. Gregory, the complainant said Shepherd held his arms across the door of the public-house and would not allow him to pass after the camera was knocked over—not by an accident. He himself did not pick up the camera and knock it two or three yards away, saying "it was no good to him now." Pressed by Mr. Gregory, complainant still denied saying such words. He had no witnesses to call; they were afraid to come because of the constable.

Police-constable Shepherd said he was on leave when he was at the Crown. He saw Cripps get up in his cart, and in passing the camera one of the wheels of the cart struck a leg of the camera and knocked it over. One little piece of wood was broken and witness was going to mend it, when Taylor knocked it two or three yards away, saying it was no good to him now. It was then it got broken. When it was knocked over by Cripps it was done purely by accident, and no bet was made as described.

By Taylor: Did you not bet Cripps three to one in whiskies that he couldn't knock it over and smash it?—Certainly not.

How many "threes" of whisky had you had that morning?—None; I never drink whisky.

Taylor (sarcastically): He don't drink whisky, he don't. Oh, no; of course not. (Loud laughter.)

Wm. Dabner corroborated, and the summons was dismissed, and complainant told he must pay the costs or a distress warrant would ensue.

Complainant said he had no cash, but they could have the camera. (Laughter.) The money was eventually paid.

* * *

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

10,146. WILLIAM HENRY PRESTWICH, 744, High Road, Tottenham, London, "Improvements in Dark Slides for Photographic Purposes."—*May 23rd*, 1893.

10,166. CHARLES SHAW, 104, Aston Road, Birmingham, "Improvements in Photographic Cameras, and Fastener to be used therein."—*May 23rd*, 1893.

10,184. MYER COBÉ, 44, Lennard Road, London, "Improvement in Magazine Photographic Cameras."—*May 23rd*, 1893.

10,194. JAMES RANDOLPH COURTENAY GALE, 33, Southampton Buildings, Chancery Lane, London, "Improved Means for the Development of Photographic Plates."—*May 23rd*, 1893.

10,319. GEORGE RUSSELL HEAVISIDE and JAMES HARRIS SCAMPTON, 7, Grosvenor Street, Coventry, "Improvement in Photographic Printing Frames."—*May 25th*, 1893.

10,397. THEODORE FREDERIC SANDBACH TINNE, 8, Quality Court, Chancery Lane, London, "Improvements in Photographic Cameras."—*May 26th*, 1893.

German Patent Announcements

FOR MONTH ENDING MAY 31ST, 1893,

Specially abstracted by Dr. H. Zerener, Civil Engineer, the Patent Office, 20, Eichendorffstrasse, Berlin.

57.G.7880. "Objective." C. P. GOERZ, in Schoneberg Berlin.

57.St.3438. "Contrivance for Cutting Photographs, Cartoons, &c." ADOLF STENICKA, in Teplitz, Bohmey.

57.Z.1620. "Smoke-hood for Magnesium Flash-lamps." CARL ZINK, Hof-photograph, in Gotha.

57.S.7126. "Apparatus for Automatically Preparing Photographic Pictures." (Addition to patent 61,806.) CARL SASSE, in Hamburg.

REVIEWS.

CHICAGO EXHIBITION: OFFICIAL CATALOGUE OF THE BRITISH SECTION. (*London: William Clowes & Sons.*)

THIS bulky catalogue, issued under the auspices of the Royal Commission for the Chicago Exhibition, is a most creditable production; for, besides its intrinsic excellence, it had the merit of being in English hands some days before the Chicago Exhibition opened its doors. The book comprises an introductory chapter by Sir Henry Trueman Wood, the Secretary to the Commission; a synopsis of the classification, and a list of the various committees, after which each department is dealt with in detail. "Photography" has for its committee Mr. Francis Cobb (chairman), Sir Richard Webster, Sir Frederick Bramwell, Captain Abney, Mr. George Davison, Mr. James Dredge, Colonel Gale, Mr. H. P. Robinson, and Mr. H. Seyton Scott, who acted as secretary. In such good hands, we need hardly remark, the interests of British photography at Chicago have been well taken care of. The exhibits are found in Department L. under "Liberal Arts," turning to which we find a small but representative collection of pictures catalogued, comprising works by most of the leading photographers in this country. Our apparatus makers also appear in force. The "Women's Work" Section occupies about sixty pages of the catalogue, and scattered through them are several exhibits of photographs.

PHOTOGRAPHIC MOSAICS, 1893. (*New York: Edward L. Wilson.*)

DR. WILSON has greatly improved the magazine with which his name has so long been associated, and it would seem that he is equally desirous that his annual record of photographic process should be improved at the same time. The volume for 1893, which is now before us, is certainly a great advance on its predecessors. Well printed, and on good paper, it is lavishly illustrated with process blocks; and, if we have a fault to find, it is in the great profusion of the illustrations some of which might be spared. We allude more particularly to two or three which seem to have gone a little wrong in the hands of the printer. We sympathise with Dr. Wilson in this matter, for we know what tender things are these process blocks. The ones in question appear to have suffered from the application of lye, which, as we know by sad experience, has a most destructive action on the metal. The book is full of good things, and makes a handsome volume.

JAHRBUCH FUR PHOTOGRAPHIE UND REPRODUCTIONSTECHNIK, 1893. Edited by Dr. Eder. (*Halle a/S.: Wilhelm Knapp.*)

HERE is another foreign annual, and one which will well repay perusal by those who can read German. The best writers on photographic processes, optics, &c., have contributed to its pages, and good illustrations form, as usual, a feature of the volume.

* * *

TENNYSON.—A memorial is to be erected in Freshwater to the late Poet Laureate. The place was his residence, his favourite residence, for many years—we believe since the year 1850. There are two proposals before the projectors—a committee formed in Freshwater itself. One is to substitute for the existing wooden beacon on the highest part of the Freshwater Down a stone tower. The other is the erection of a granite monolith, in the form of an Iona cross, at the corner of Farringdon Lane, along which the poet often walked. The committee ask for £500. About half that sum has already been collected.—*The Author.*

PATENT OFFICE

CORRESPONDENCE.

THE PHOTOGRAPHIC SALON.

SIR,—I am desired by the Committee of the "Photographic Salon, 1893," to forward to you an early copy of the full prospectus and entry form, and to say that they will feel greatly obliged by your giving publicity to the same in your valuable paper, especially as regards the names of the Committee and the complete regulations for entry, &c., which are now published in full for the first time.

GEORGE DAVISON, Chairman Organising Committee.

[The following is the prospectus and entry form above alluded to :—

GENERAL COMMITTEE :—Bernard Alfieri, J. S. Bergheim, Shapoor N. Bhedwar, Valentine Blanchard, Rowland Briant, Tom Bright, T. M. Brownrigg, Arthur Burchett, A. Buschbeck, Eustace Calland, H. Hay Cameron, Lyonel Clark, Francis Cobb, Hector Colard, Walter L. Colls, William Crooke, Henry E. Davis, George Davison, J. Gale, John Pattison Gibson, Karl Greger, William Asbury Greene, Alfred Horsley Hinton, Frederick Hollyer (Treasurer), Richard Keene, Baron Liebig, Alfred Maskell, H. P. Robinson, Ralph W. Robinson, Baron Nathaniel Rothschild, Lyddell Sawyer, Francis Seyton Scott, Henry Stevens, J. Strakosch, Frank M. Sutcliffe, Harry Tolley, Carl Ulrich, J. B. B. Wellington, H. Van der Weyde, B. Gay Wilkinson, jun., W. Willis.

1. An exhibition of photographic pictures, to be called the Photographic Salon, will be held at the Dudley Gallery, Piccadilly, London, W., from October 9th to November 11th, 1893.

2. Careful consideration will be given to all pictures entered for exhibition, and a selection of works of pictorial merit only made by a committee.

3. Foreign as well as English photography will be represented.

4. The aim of the organisers of this, the first Photographic Salon, is to inaugurate a series of exhibitions (which it is hoped may be annual ones) bringing before the public the best productions of photography solely from the pictorial point of view.

5. No awards are offered, and no charges made to exhibitors.

6. The usual charge of 1s. will be made to the public for admission. Exhibitors will be entitled to a season ticket.

7. Arrangements will be made for the sale of pictures, if desired, and a commission of 15% will be charged on sales effected. Particulars as to price and sale will be printed in the catalogue.

8. Each picture must be separately framed, and each frame must bear on the back name of exhibitor, number, and title of picture, and price if offered for sale, corresponding to the particulars on the entry form. This information must also, for catalogue purposes, be repeated on a label attached by a string, and made to hang over the front of the frame.

9. The annexed form, announcing intention to send pictures, should be forwarded as soon as possible, and not later than Friday, September 1st. The entry form must be sent with, or previous to, exhibits, and received not later than Wednesday, September 27th, addressed to the Secretary, Photographic Salon, 215, Shaftesbury Avenue, W.C.

10. Pictures sent in packing cases, &c., must be delivered, carriage paid, at 215, Shaftesbury Avenue, W.C., not later than Wednesday, September 27th. Frames delivered by hand must be left at the Dudley Gallery, Piccadilly, on Saturday, September 30th, and removed after the Exhibition from the same place on Monday, November 13th.

11. The Committee will unpack, repack, and deliver to carriers all exhibits sent in cases, but will not be responsible for damage. Every care will be taken of exhibits. To avoid damage, frames should have no projecting nails.

12. Intending exhibitors are desired to fill up the annexed forms of advice and entry, and to forward the same to the "Secretary of the Organising Committee, Photographic Salon, 1893," 215, Shaftesbury Avenue, London, W.C., in accordance with the instructions noted thereon.]

INTER-COLONIAL SLIDE EXCHANGE.

SIR,—The editor of the *Australian Photographic Journal*, on behalf of twelve photographic societies in Australia and New Zealand, is arranging a set of slides representative of the best workers in those colonies, which it is proposed to send to this country for circulation amongst such of the British photographic societies as may desire it. In return the Colonials ask that we should make up a set of British slides, together with a brief lecture or notes concerning them. May I ask all those British societies that are interested in the matter to communicate with me as soon as possible, giving any suggestions that may occur to them, and stating what they will be prepared to do in the matter ?

Memorial Hall, E.C. H. SNOWDEN WARD.

COLOUR PHOTOGRAPHY.

SIR,—I have read the letter which Mr. Ives has written to you with regard to *photography in colours*. I will reserve for another occasion a full reply to, and refutation of, his assertions respecting the interference method. For the present, I will confine myself to that portion of his letter which concerns me personally.

Mr. Ives challenges me either to prove my assertions, or else to own that I have made erroneous statements with regard to facts.

The best testimony to the truth of my statements is furnished by the proofs shown by M. Lumière, at the Photo Club in Paris, to the French Photographic Society. I was there with a numerous party, all perfectly disinterested, and having no other motive but the acquisition of knowledge. For my own part, I cannot justly be accused of an exaggerated enthusiasm. I simply wish to state what I have actually seen, without any exaggeration whatever.

The landscapes shown by M. Lumière are exactly such as I have described.

Certainly M. Lumière had not had the forethought to bring with him *the original view* from which the photo was taken : but we know enough of the blue of the sky, the green of the trees, the whites and greys of the tints of stone, &c., to be able to judge, even though Nature herself might not be before our eyes.

When looking at the landscapes in an exhibition of paintings, one does not require the artists to produce their models ; one can always distinguish works from nature from works of imagination.

Mr. Ives is unfortunately not altogether disinterested in the matter. He quite forgets how strongly he is influenced by his own hobby of the heliochromoscope, and the projections of polychrome images by way of synthesis.

I think I may claim the right to speak about this question, having studied the subject sufficiently long to be in a position to do so. Besides, there is no comparison between the methods of composite heliochromy of Messrs. Cros and

Ducos de Harron (of whom Mr. Ives is only a follower) and that of M. Lippmann.

In the former case we have an *indirect method* of arriving at the synthesis of colours, which merely results in a *temporary effect;* whilst in the latter case a *direct means* is employed to reproduce colours, and the *effect obtained is permanent.*

It is certainly singular that anyone should attempt to compare two methods so different in their working and in their results.

I will not, at present, follow Mr. Ives in his criticism of the interference method. It is as yet in its infancy, and there is still much to be done; but there is no doubt that it contains one of the most remarkable scientific principles yet discovered; and, judging from the admirable results already obtained, we may confidently look for marvellous results in the near future.

We are confronted, on the other hand, by an industrial interest. which we have no wish either to attack or to depreciate, but which makes us nevertheless somewhat dubious of the perfect impartiality of Mr. Ives.

With regard to myself my objects are the search after truth and the general interests of science, and I feel sure that the public will know how to judge between us.

Leon Vidal.

PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

Ordinary Meeting, June 13th, to be held at 50, Great Russell Street, at 8 p.m.

A paper will be read by Mr. Wm. Taylor (of Leicester) on "The Construction of Interchangeable Lens-screw Fittings," and Dr. C. P. Goerz (of Berlin) will read a paper upon, and exhibit, "A New Anastigmatic Lens."

Putney Photographic Society.

The members of this Society had their second summer outing of the season on Saturday, May 27th, when a good muster of members assembled, and, under the leadership of Mr. Faulkner, proceeded to Hayes, on the S.E.R., for Hayes and Keston Commons. Full advantage was taken of the very pretty scenery abounding on these beautiful commons, perhaps more particularly round the lakes at Keston. Good accommodation was provided at the Fox Inn.

The next outing will take place on Saturday, June 10th, to Burnham Beeches, when Mr. Wm. Martin, jun., hon. treasurer, will act as leader.

Richmond Camera Club.

Summer Programme, 1893.—Meetings, third Monday in month. Informal Meetings: June 19th, July 17th, August 21st, and September 18th. On these evenings members are requested to bring prints from negatives taken during the club excursions. Excursions: Saturday, June 10th, Uxbridge, 2.20 train from Paddington; leader, Mr. Ardaseer. Saturday, July 1st, Eynesford, 2.40 train from Holborn Viaduct or 2.45 from Victoria; leader, Mr. Williams. Monday, August 7th (Bank Holiday), Oxted (for Limpsfield), 10.45 a.m. train from Clapham Junction; leader, Mr. Williams. Saturday, September 2nd, Godstone (book to Caterham), trains from Charing Cross 2.5, Cannon Street 2.17, London Bridge 2.10; leader, Mr. Davis. N.B.—Those wishing to attend this excursion should inform Mr. C. H. Davis, 97, Church Road, Richmond, not later than August 28th, so that a conveyance from Caterham Station may be arranged for.

The East London Natural History and Microscopical Society.

The members of the above Society, according to their established custom, had their annual outing and "social" on Derby Day, 31st May, to Epping Forest. Commencing from Theydon Bois, the route selected was through the less frequented northern portion of the Forest near Epping, towards Copped Hall. and then southwards to High Beech. Early in the afternoon the party was increased by a contingent from the Hackney Photographic Society. The weather was all that could be desired, and some very interesting "finds" delighted the naturalists, and by the photographic section a good many exposures were made. The rendezvous for the social was the George Hotel, George Lane, Woodford, where, at 7 p.m., the President of the former Society, Mr. W. Smart, and other members of the Executive and friends, met those who had borne the burden and heat of the day. After ample justice had been done to an excellent and much appreciated tea, to which about thirty sat down, a most pleasant evening was spent. Mr. A. Dean, the indefatigable secretary of the Natural History Society, and who is also the curator and assistant-secretary of the Photographic Society, performed several *morceaux* on the violin, Mr. Drew presiding at the piano. Messrs. Harding, Sparrow, Carrick, Dr. Gerard Smith, Love, T. Wishart, and Phillips enlivened the evening with a good many songs; Mr. Slight giving an excellent recitation. Mr. Smart took an early opportunity to propose the health of Mr. Dean, whose inception it is to hold these agreeable gatherings and whose happy idea it was to combine the Photographic Society in the outing, thereby adding so much to the pleasure of the day and the success of the evening.

Hackney Photographic Society.

Tuesday, May 30th, 1893.—Mr. E. J. Wall presiding.

Referring to amidol, Mr. Vining said, although the negatives were pretty-looking, they were not good printers. They suited landscape work better than portraiture.

Mr. R. Beckett suggested that he should reduce the exposure and extend the development. He used it every day. That day he had developed twenty-five negatives in thirty minutes; could get any amount of density and excellent gradation.

Mr. Wire showed prints from an amidol-developed negative taken by flash-light; they had sufficient contrast.

The Chairman said it was always best to add amidol *dry*, otherwise the density-giving power is soon lost; 2 grains amidol, ¼ grain bromide to the ounce works well. It is specially good for old plates. but he did not believe in the latitude in exposure generally claimed for it. The negatives are not so non-actinic as pyro. Metol is nearer pyro. More control can be had over metol than any other developer excepting pyro. It must be dissolved in the order given in the printed formula. There are two kinds of metol—one an oxalate, the other a sulphate: the latter gives most density.

A discussion then took place on cloud negatives.

Mr. G. Hankins uses a hand camera, small stop and rapid exposure. A black glass mirror, with isochromatic plate *f*/32, $\frac{1}{20}$ to ¼ second, cuts off much of the too energetic blue rays by polarisation. If the sky is a brilliant blue, the light yellow screen is an advantage.

Mr. E. J. Wall generally takes a silver print, and cuts out at the sky-line as a mask.

Mr. S. J. Beckett said clouds reflected in still water gave better results than the originals.

Mr. W. L. **Barker** smokes the plain side of the negative with a wax taper.

Mr. W. A. **Hensler** fully exposes and under-develops.

Mr. E. J. **Wall** spoke highly of Place's shutter, a roller shutter, giving less exposure to the sky. In a batch of views recently taken only 3 per cent. were without clouds. To develop, he uses ⅛ grain pyro to normal of ammonia and bromide.

Mr. W. F. **Gosling** suns down his skies when dead white darker at top than at the horizon.

Dr. **Roland Smith** always reduces the sky with ferridcyanide of potassium and hypo. However dense it may be, the clouds can always be got out.

Mr. S. J. **Beckett** retards development by bromide applied locally with a brush.

At the close of the meeting, the presentation of a silver breakfast service was made to the honorary treasurer, Mr. J. O. Grant, in recognition of his valuable services to the Society.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Programme for June, 1893:—Monday, June 12th.—Whole-day excursion to Dovedale. Leader, Mr. J. H. Pickard. Tuesday, June 13th.—Social evening. Tuesday, June 20th. Mr. Hendren will continue his paper on "Christian Architecture in England." Saturday, June 24th.—Half-day excursion to Stoneleigh. Leader, Mr. J. T. Mousley. No more enjoyable afternoon can possibly be spent than in the vicinity of Stoneleigh. The remains of the original monastic building, known as Stoneleigh Abbey, still exist at the rear of the quadrangle of the more modern structure. Lord Leigh has very kindly given his consent to photograph this portion, consisting of several richly-moulded Norman doorways, and traces of 14th century work in a vaulted crypt. The Church of St. Mary is extremely interesting, and retains several very fine examples of late Norman work. The river and park should also offer many subjects for the camera. Train leaves New Street at 1.35, return train at 7.57. Tea will be arranged for. Tuesday, June 27th.—Social evening. Saturday, July 1st.—Half-day excursion to Meriden. Leader, Mr. E. C. Middleton. Brakes will leave Coldicutt's, Station Street, at 1.30, for Meriden and Walsh Hall (very fine subject), and return through Packington Park, when permission will be obtained to photograph. Tea will be arranged for at the Bull's Head, Meriden. Brake fare, 2s. return. Tea, 1s.

All the Tuesday evening meetings will be held in the Large Room, Colonnade Hotel, at 7.30 p.m.

A prize—an enlargement—is offered by the Society for the best picture taken for each excursion. Mr. J. H. Pickard has very kindly offered the prize for the best three pictures taken on the Dovedale excursion, one to be an upright.

Pictures for competition must be sent in to the Secretary within fourteen days from the date of each excursion.

NEWCASTLE-ON-TYNE AND NORTHERN COUNTIES PHOTOGRAPHIC ASSOCIATION.

The above Association has arranged an outdoor meeting to visit Ripon and Fountain's Abbey on the 15th inst.

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Developing dishes made of aluminium are light and durable, and they resist all agents likely to come into contact with them. They may be seen and purchased at Messrs. Hinton's.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

H. A. C.—We have not the information which you require, but will endeavour to find out about the matter, and will write to you by post.

Omar.—Your course is clearly to reduce the amount of pyro. Try one grain only to each ounce of developer, and you will probably find that you will get the kind of negative you are looking for. Clearing with citric acid and alum will be a distinct advantage here.

Hypo.—The best test is iodide of starch. Shred the suspected card into flakes, put into a test tube with the iodide solution, and allow them to macerate for an hour or more.

D. D.—The lens has already been fully described in our columns. If you want a fuller account of it procure the shilling handbook issued by the maker.

Cyclist.—Dust is the great hindrance to carrying photographic apparatus upon any kind of vehicle. We shall shortly describe and illustrate a new form of carrier, which will probably meet your requirements.

M.—Bamboo is the best support to use for a lantern screen. For some reason or other—possibly the wide adaptation of the material to fancy furniture—there is a large quantity in the market, and it can be bought at various shops at a very cheap rate. It is exceedingly light to carry about, and almost as strong as steel.

Julius P.—Meisenbach blocks are now made in two or three degrees of coarseness depending upon the fineness of the screen employed. In the *Daily Graphic* you will find examples of the coarsest screen-work—which is the only one suitable for quick printing. The finer screens necessitate the finest paper and the best ink, if you would aim at the best possible results.

Water Test.—You may detect magnesia by boiling down a sample of the water until it is reduced to about a tenth of its former bulk. Test with a few drops of neutral carbonate of ammonia and a little phosphate of soda solution. Magnesia will be precipitated if it be there.

P. C.—We should recommend you to place the negative on your retouching desk and to remove the blemishes bodily with the film by means of a sharp penknife. The remedy is a bold one, but no other that we know of will meet the difficulty.

◆

Messrs. Fuerst Brothers inform us that, in order to enable dealers to make up a stock solution of the Metol-Hauff developer for the convenience of their customers, they have issued special instructions for this purpose, which are as follows:—*Metol-Hauff—Instructions to Dealers for the Preparation of a Concentrated 2 per Cent. Metol Developing Solution.*—Dissolve in the first place ¾ oz. of metol completely in 35 oz. of water, and afterwards add 4½ oz. of sodium sulphite pure crystal; 3⅛ oz. of carbonate of potash, chemically pure; ⅘ oz. of a 10 , solution of bromide of potassium. In well closed bottles this solution keeps for a very long time. For studio work, one part of this solution is diluted with two to three parts of water. For landscapes, one part of the above solution is diluted with three to five parts of water. A more concentrated developer than given in the above directions is not advisable. It is recommended that the attention of amateurs and others should be drawn to the fact that, when using this developer, shorter exposures than hitherto should be given, but that it is necessary to develop pretty strongly, as the negative loses density in the fixing bath.

PATENT OFFICE

The Photographic News

A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1815. JUNE 16, 1893.

NOTES.

THE railway companies are this year making the usual concession to anglers by granting them tickets at reduced prices, in order that they may pursue the gentle art of impaling gentles at as cheap a rate as possible. Many futile attempts have been made to persuade the companies to treat camera-bearers with the same indulgencies, but hitherto without success. In less than a month some two or three hundred photographers will meet in convention at Plymouth, and it seems only fair that the railway companies should make the way easy for them in the matter of fares. It would, perhaps, be politic for the Convention authorities next time to approach the railway companies on the subject before they fix a trysting place so far from the metropolis.

We ventured to point out lately that professional photographers in this country are not so enterprising as they might be, and that they are too prone to sit still and complain of bad trade, while, by striking into new paths, they might find their hands full of work. We were more than ever persuaded that this was the case after a recent visit to a populous town in the English Lake district.

Here there were at least three photographers whose names and businesses were advertised over their doors; possibly there may have been more. The specimens displayed in their show-cases were of the most distressing kind, and their exhibition must have done more harm than good. We also noticed that at the post-office, at the library, and at the fancy shops there were displayed fine pictures of local scenery—glens, waterfalls, bridges, tarns, &c., &c.—not by the local men, but by well-known firms, who had had the enterprise to send their assistants into the place.

Why should the local men let outsiders do the work which they should undertake and profit by themselves? They *ought* to be able to secure better views of such subjects than anyone else, for they are on the spot and can employ their cameras at the best time of year, in the best light, and can seize those passing effects of light and shade which a casual visitor would most probably miss.

As an example, let us take the case of a waterfall. It is only at its best after a few days' heavy rain, and the local man can of course take advantage of such a time, and thus ought to be able to make a better picture than the stranger. He can, too, obtain winter views of the same fall when its rocks are hung with stupendous icicles, and the trees sparkling with hoar frost. Such pictures would find a wide sale, merely on account of the contrast which they afforded to ordinary summer views of the same places; but they are never attempted save occasionally by the enthusiastic amateur.

It was pleasant to read a letter from Mr. Holman Hunt which was published in the *Times* a week ago; pleasant, because it gave ungrudging praise to the work of a brother artist, and spoke of Sir Frederic Leighton's Daphnephoria—a picture put up for sale at Christie's—as "the very noblest painting that has been produced in modern, if it does not excel all of ancient, times." The writer advocated the purchase of this work for the national collection of pictures, and offered to head a list of subscriptions for that object. But the laudable intention fell through for want of support, and the picture found a private purchaser at three thousand seven hundred and fifty guineas.

Mr. Jackson, architect to Oxford University, has issued a report concerning the suggested restoration of St. Mary's Church. The tower and spire, which were restored only forty years ago, are, he says, in such a ruinous condition that had a scaffold pole struck accidentally the south-west group of pinnacles, a ton of stone would have been dislodged. The statues, too, have rotted to such an extent that he recommends, "by means of photography," an exact imitation in new and better stone. What particular photo-sculpture process he means to recommend we have not the remotest idea.

The statues are indeed in a bad way, and we fear that photography cannot help them much. This is what a leader in the *Times* says about them : "A soft vein, running across the forehead of St. John the Evangelist, will bring the top of the head off before long. Most of the statue of the Infant Christ is in utter ruin. Both hands of a Bishop are gone; and St. John the Baptist's head is going. King Edward the First's, or Second's, cheek, and St. Hugh of Lincoln's chin, show ominous breakings-out. An Archbishop's face has flaked off, and St. Cuthbert has lost his nose. In short, of the ten old statues six are incurable. Two it may be feasible to repair. Only of a couple can the architect speak with confidence as having real life in them. The great majority, crippled and woe-begone, are certain to moulder to pieces if let alone."

But *audi alteram partem.* The excellent Society for Protecting Ancient Monuments sent two emissaries to spy out the land of Oxford, and to look at these particular statues. In effect these gentlemen protest that the figures are solid and whole, and need not a physician; that what is described as rotting away is but a mere surface decay, and that the statues should be saved from the destroying hand of the restorer. Now which of these reports is the correct one? An umpire should be appointed at once, in the shape of a skilled photographer, and we should then be able to judge whether St. John the Baptist, St. Cuthbert, and the other members of the noble company are really coming to pieces, or suffering from a mild attack of architectural eczema.

The poet has remarked that there are many flowerets which are "born to blush unseen." He might have added that there are several persons who, in their anxiety to be seen or known, put forth proposals and suggestions which must ever be impossible of realisation. We all know that photography is fruitful of these crude ideas, and it is often instructive to look back upon them, and to wonder what has become of them and their authors.

Here is one which first saw the light in the *New York Herald* not many months ago. "Mr. Harding, of Piccadilly," it begins (somewhat vaguely, it must be confessed, for Piccadilly is a long road, and Harding is not an uncommon name), "in conjunction with Ernest Grisét, the artist, has arranged for a balloon ascent under the auspices of the Balloon Society of Great Britain, about the time of the next full moon. Their object is to take photographs, observations, and sketches of moonlight scenery on the earth as viewed from a balloon. The ascent will take place from Olympia on the first favourable opportunity."

It is obvious that the person who compiled this precious effusion knew nothing about photography, or he would know that moonlight pictures are impossible without an exposure of some hours at least. His allusion to "the next full moon" reminds us that the word "lunacy" was the outcome of the belief that persons of weak intellect were particularly idiotic at the approach of moonlit nights.

Blue-books are at the present moment the dryest of dry reading, but as time goes on we may see attempts to make them more acceptable to the general public. The Government of New South Wales has set an excellent example in this direction. We have before us the annual statement of works carried out by the Public Works Department during the year; and though the volume is bound in the orthodox and rather repellent blue paper, the contents are totally different from what we have been accustomed to associate with such literature. The feature of the publication is a series of seventy admirable photographs of railway works, bridges, aqueducts, canals, waterworks, docks, public buildings—exterior and interior—and sewage works. These photographs have been taken by the photographer attached to the Department, and are equally excellent both as photographs and reproductions. When shall we see an official photographer a member of the staff of any of our public departments?

We alluded some time ago to one of the provisions of the Chinese Exclusion Act which has recently become law in California. The clause in question laid it down that every Chinaman resident in the State must have a certificate of residence, to which his photograph was to be attached by way of identification. It now appears that the clause is unworkable. John Chinaman refuses to be "identified"—possibly he is conscious of the futility of the enactment because of his similarity to every other Chinaman. Any way he has refused to register, and so the enforcement of the photographic clause has had to be dropped. It was a foregone conclusion.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Artistic Exhibition of Photography — Stripping the Film of Negatives — Reducin — Platinum Toning—Astro-Photography.

Artistic Exhibition of the Amateur Photographic Society of Salzburg.

An artistic exhibition of photography will be held by the Amateur Photographic Society of Salzburg, from July 15th to August 15th. The exhibition, which seems to be based on about the same lines as the one held by the Club of Amateur Photographers of Vienna, in 1891, is under the patronage of the Archduke Ferdinand IV., Grand Duke of Toscana. A jury will decide as to the admission of each picture, only photographs of artistic merit being admissible. The best pictures will be certified by a special diploma, bearing the signature of the patron. Applications for hanging space for pictures must be made not later than June 15th. The exhibition promises to become one of special interest; and, as we are informed, a great many applications have already been made. All communications should be addressed to the President of the Society, Ludwig, Victorplatz F, Salzburg.

Stripping the Film of Negatives.

The method generally adopted for stripping the film of gelatine negatives is by the employment of fluoric acid. It is, undoubtedly, a good and reliable one: but its drawback is the highly corrosive properties of the fluoric acid. Many will, therefore, be pleased to hear that Herr R. Ed. Liesegang has discovered that sodium fluoride (Na. Fl) may be very well substituted for the fluoric acid. If a gelatine negative is placed in an aqueous solution of sodium (fluoride strength immaterial), the gelatine film will come off the glass support after a few minutes, without the glass or the gelatine being at all attacked by the bath. In order to prevent the gelatine film from expanding in the solution, it may be well to previously coat the negative with a 5 per cent. plain collodion. In this case, however, the process of stripping proceeds more slowly.

Reducin.

The new developer "reducin," which, as I mentioned in my previous letter, has been introduced by the Chemische Fabrik auf Actien, late E. Schering, of Berlin, and which, like amidol, acts as an energetic reducing agent on gelatino-bromide films without the addition of an alkali, is said to be the hydrochloride of diamido-resorcin. According to Prof. N. W. Vogel, the substance has been much improved of late, forming now a nearly white mass of loose crystal needles. Prof. Vogel has repeated his experiments with the improved substance, and the following formula was used :—

Reducin	3 grammes.
Sodium sulphite	25 ,,
Sulphuric acid	9 drops.
Water	500 c.c.

In dissolving the reducin in the water, the latter acquired a strange greenish colour; and in adding the sulphuric acid and the sodium sulphite it turned yellow. It is said, however, that the solution becomes clear again if kept in well-stoppered bottles. Two plates, equally exposed to the same subject, were developed at the same time, one with pyro-soda, the other with reducin; and whilst with the latter the image appeared at once, it was about thirty seconds, in the case of pyro-soda, before the image became apparent. The experiment was repeated; but this time one plate was exposed twice as long as the other, and the less-exposed plate was developed with reducin, the other with pyro. Also in this case the image in the reducin appeared considerably earlier than that in the pyro, the relation being about 1 to 6 in favour of the reducin developer. The quality and detail were the same in both cases. From these and other experiments Prof. Vogel concludes that the reducin is a first-class rapid developer of double the power of the pyro-soda developer—*i.e.*, it develops the same image with half the exposure of that required by the pyro developer. Besides it is said that the negatives developed with it are softer and more harmonious than those developed with pyro. Considerable quantities of bromide of potassium may be added to the reducin developer without interfering with its developing power, but the contrasts of the negative are improved. The reducin developer may, therefore, be specially recommended for instantaneous exposures if it is desired to produce soft images, as, for instance, for portraits taken in the studio; if, however, a large amount of density is required in the negatives, the pyro developer is still to be preferred.

Platinum Toning.

The following new toning bath for silver prints is recommended in *Die Photographie* :—

Water	500 c.c.
Common salt	35 grammes.
Tartaric acid	8 ,,
Sulphate of soda	6 ,,
Chloro-platinite of potassium (12 per cent. sol.)	8 c.c.

This bath gives magnificent engraving black tones, and the prints toned with it are very like platinotypes with regard to colour. Another advantage is that it keeps for a very long time, and that it may be used repeatedly until exhausted.

Astro-Photography.

As the *Archiv* is informed, twelve new planetary bodies have been detected of late by means of photography, belonging to the group of the asteroids, the orbits of which lie between those of "Mars" and, "Jupiter." They have received the preliminary signation, "1893 M to X."

* * *

Photography is now used at the Royal Mint for the purpose of recording the temperature of blast furnaces. A thermo-electric pyrometer is employed, the spot of light from the mirror being received on a revolving drum covered with sensitive paper. The curves thus produced give a record of the variations in the temperature of blast, and by watching these curves a greater regularity of work is ensured. The application is the idea of Professor Robert Austin, who has practically worked it out.

A CYCLING TOUR IN BRITTANY.

BY LOCKE MACDONA, B.A. (OXON).

(*Concluded from page* 364.)

NEXT morning we started at eight for Chateaulin, *viâ* Lésvenen. The road is good, but there is nothing specially interesting. I took a shot of an old lady with a distaff, but had some trouble in getting her to pose, as she couldn't understand a word of French, speaking only Breton, which much resembles Welsh. After a twenty-mile ride, and a delicious bathe in a trout stream *en route*, we reached Lésvenen, a quiet and sleepy village. We took *déjeuner* at the Hôtel de France, a very comfortable and moderate place, and to be recommended to tourists. There being nothing here of interest to detain us, we soon started for Chateaulin, *viâ* Landerneau. We passed through Landerneau without stopping, as there was nothing of interest, and passing Daoulas stopped at a hamlet called Hôpital, where we made the acquaintance of one Fraboulet, the landlord of the inn there, who was a keen sportsman and very lively and chatty. He told us there was some very good shooting to be had in the neighbourhood. After enjoying some refreshment and a talk with our lively host, we started for our destination, Chateaulin, passing through Le Faou (about two or three miles). There are some nice old timbered houses here, but we hadn't time to photograph, and on a good road reached Châteaulin, pleasantly situated on the River Aulne, about dusk, and were very comfortably entertained at the old-fashioned Hôtel de la Grand Maison, where, to our astonishment, we found an electric light installation. We had an excellent dinner and clean, comfortable beds, and *café* in the morning for about six francs each, which we considered very cheap.

OLD HOUSE AT MORLAIX.

Next morning, we started early as usual, before the heat of the day came on, for Quimper (sixteen miles). A long winding hill leads up from Chateaulin, commanding a most delightful view of the river, the richly pastured valley, and the surrounding hills. It is a very pretty ride to Quimper. We again had a very refreshing bathe in a large lake, or *étang*, a little distance to the right of the main road, about ten miles from Quimper (Roch Veur I think was the name of the place). We ran down a grand hill into Quimper, and arrived amidst a busy scene of marketing, the "Place" around the magnificent Cathedral being crowded with the most picturesque costumes imaginable. Here, indeed, was a paradise for the hand-camera man, and I took as many as I could, but my roll-holder perversely sticking again, to my great annoyance, I lost a good many good things.

We put up at the Hôtel du Parc on the Quay, and can recommend it most strongly, for a better *déjeuner* we never sat down to, and 2f. 50c. was all they charged for it. The town is full of interest, and a most delightful place to spend a few days at. The Cathedral dates from the 13th century, and has a very beautiful Gothic porch and two magnificent and graceful spires, and some very beautiful old glass in its nave windows. The porch I succeeded in getting a hand-shot negative of, also a nice view of one of the picturesque side streets, with the Cathedral itself as a background.

Leaving Quimper with regret, we started for Rosporden (twelve miles), a good road, but a trifle more hilly than we cared for, where we arrived about eight. We intended taking the train from here to Quimperlé, not knowing the accommodation we should find in the village inn, and with this object went to the station; and here was a chance lost, for we found a train off the line in an extraordinary position, and I had sent my camera back to London. As there was not a train for some time, we thought we would try the village inn, and we found the people so pleasant and the entertainment so good that we decided to stay here. We can strongly recommend this quiet and comfortable little place (Hôtel des Voyageurs). We noticed an early arrival outside, as we prepared to start, a veritable French "scorcher," looking very grimy and unshaven, clad in the usual cycling garb, with long peaked jockey cap and a belt proclaiming far and wide the virtues I presume he most prized, which were "L'honneur et la Patrie." He strongly advised us not to omit visiting Pont Aven, and, dilating upon its beauties, offered to personally conduct us there, a kindness which we politely declined. We were soon on the route to Pont Aven (eight miles), a good road. Being Sunday, everyone we met was most gaily attired, the men in black, with very high Gladstone collars, and the women with marvellously got-up white caps and very broad fluted collars and dresses of all colours. We ran down into the village, which is picturesquely situated on the river whence it takes its name. The most characteristic feature in the place is the number of its watermills. We counted nearly a dozen in and around the village. The village, nestling as its does between hills studded with huge lichen-covered granite boulders, and, owing to the picturesque aspect of its water-mills and shipping, is a very favourite resort of artists. The *salle-à manger* in the Hôtel des Voyageurs bears on its panelled walls many a clever sketch in oils, this being quite a common resource with French artists of compounding for their board and lodging. We can recommend the hotel for good *cuisine* and civility. The day was fearfully hot, and I think most of us enjoyed a "siesta" after our *café* outside, which suggested A.'s remark that "Hôtel des Dormeurs" would have been a better name. This place abounds in beautiful costumes, and should not, on any account, be missed by the tourist.

We started once more, about five, for Quimperlé (ten miles), a nice old place, but which we had not much time to visit, so rode on. We soon reached a pretty village in a valley watered by the River Scorff, which, as usual, gives its name to the place, Pont Scorff (nine miles from Quimperlé). There is an old bridge and a watermill, and usually busy washerwomen by the riverside, all of which are good camera subjects. As we descended the hill into the village, B.'s pedal caught in the chain, and threw him and the machine. The damage being beyond amateur repair, we were obliged to seek out a *méchanicien*, who promised to put it right by the next morning, necessitating our stopping the night at the unpretending little hostelry (the only one in the place). However, madame was most civil and obliging and got us a capital dinner, and we were very comfortable, and our bill amounted to 4f. each for dinner, bed, and breakfast. We can recommend this place to the cyclist or pedestrian. We started in the morning for Hennebont (nine miles), but did not stop there. There is a fine church and an old prison gateway, both worth a plate. We next reached Landévant, a small village (eight miles distant), after a delightful bathe in a large lake, or "*étang*," lying to the right hand of our route on the other side of the railway, and took *déjeuner* here, and then rode to Auray, a good straight run of about nine miles. Wishing to reach Rennes as soon as possible, as we were expecting needed remittances there, we took the train from here, fare 7f. 20c. each, time about three hours. At Rennes we put up at the Hôtel de France, a large place frequented by commercial gentlemen, and paid 9f. 50c. each for dinner, bed, and *café* in the morning. We got our money all right after some difficulty in establishing our identity at the Post Office, being without passports, our C.T.C. badge being, to our delight the "open sesame," the officials imagining it to be some important decoration or order, at once politely handing over the letters. Rennes we considered the very dullest and most depressing town we were ever in.

STREET IN DINAN.

Leaving Rennes next morning with much relief we had a good road through St. Aubin to Romazy (twenty miles), a village on the summit of a stiffish hill. We took *déjeuner* here and pressed on to Antrain (six miles), where C. fell while "coasting" a hill, but fortunately his bent crank was put right at the repairer's here, and we proceeded *vià* Pontorson to Mont St. Michel, where we arrived about 6.30, too late for admittance to the Abbey; but the authorities kindly made an exception in our favour, and showed us over everything there was of interest on this marvellous old rock. Space forbids my dilating upon the treadmill, the "oubliette," and the "cachots," the magnificent carved cloisters, the noble "Salle des Chevaliers," and the numerous interesting things we saw; suffice it to say that to visit this grand old rock alone is quite worth a trip to France. But this was only one of the many delightfully interesting places we visited, and, though the last, yet it was one of the finest things we saw. We didn't stay the night, but got back to the Hôtel de Bretagne, Pontorson, where we had a first-rate dinner and were very comfortable, the tariff being 7f. each for dinner, bed, and breakfast.

Next morning, to our regret, was our last, and we rode to St. Malo through Dol, a very vile, lumpy road, and not to be recommended. We had to spend the whole afternoon hanging about till it pleased the authorities to allow us to put our machines aboard, which ceremony was duly attended and certified by a soldier told off for the purpose. Nevertheless it was not till about half an hour before the vessel started that we were returned our deposit (less 3f. for clerk's expenses). Our tour was a thoroughly enjoyable one. We did not in any way study economy, and the total cost, including return ticket from London, was about £8 10s. for the twelve days. Finally, to the cyclist-photographer I would say, take a light stand and a swing-back, and secure vertical and sharp pictures. Hand cameras are very convenient and are suitable for certain subjects: but where you have old buildings and narrow streets, as you so frequently get in Northern France, the two above-named requisites become an absolute necessity.

OLD HOUSE AT ST. BRIEUC.

THE ASTRO-PHOTOGRAPHIC CHART.

BY HAROLD JACOBY.

(*Concluded from page* 349.)

It was at first intended that they should not be further than 22′ from the centre of the plate, and the lists have been drawn up accordingly. But in order to accomplish this, it has been found necessary to admit many stars of less than the ninth magnitude. It has, therefore, been finally decided that each astronomer may select a fresh guide-star not more than 40′ from the centre, whenever the star set down in the official list shall, in his judgment, appear too faint for easy observation in a bright field.

It is, perhaps, unnecessary to refer to the much-discussed question of the *réseau*. This consists of a plate of silvered glass, upon which two series of parallel lines are ruled so as to divide the whole surface into small squares 5 by 5*mm*. Before the plates are exposed to the sky they are covered with the *réseau* plate, and the whole exposed for a short time to parallel light. In this way a latent image of the *réseau* is impressed upon the plate, and will appear during development. It is plain that, by afterwards measuring the star's positions with respect to the nearest *réseau* lines, we can secure results that are independent of any possible deformation of the film during development. It has been decided that the *réseau* shall be applied to all plates, but the method of application is left to the individual judgment of each astronomer. With regard to the focussing of the plates no definite decision has been reached; but it is probable that the focal plane will be selected so as to give the best images for a point about 40′ from the centre of the plate. The orientation of the plates is to be such that one set of lines of the *réseau* will be parallel to the equator. For plates whose declination is greater than 65°, the orientation is to be referred to the equator of 1900; other plates will be oriented according to the apparent equator of the day.

The question of duration of exposure, in relation to the photographic magnitudes of the stars, has given rise to much discussion. It will be remembered that the series of plates destined for the formation of the chart are to contain all stars to the 14th magnitude, while the series of shorter exposure, from whose accurate measurement a catalogue is to be constructed, must show all stars to the 11th magnitude. It seems likely that the discussion of this question will end in the simple practical expedient of making a trial negative each night of some type-region of the sky. Now, if the magnitudes of the stars in the type-region have been previous adopted as known, it will be easy to find out the exposure necessary on any particular night to insure the presence on the negatives of all stars of the desired magnitude. This process will probably lead to a considerable degree of uniformity in the results from the several observatories. And, after all, the astro-photographic project does not aim too high. It is intended to secure what astronomers have always sought for—observational results of the highest attainable accuracy. In order to prevent the occurrence of "false stars," such as would be caused by specks in the film, it may be found necessary to have double or triple images on the chart plates. This question has not been definitely decided, but it seems probable that the plates of even declination will have single images, while the series of odd declination, to be made later, will have triple images.

With regard to the measurement of the catalogue plates, each observatory is to begin as soon as convenient. The measures need not necessarily be made at the observatory itself, but the plates may be sent for measurement to some other observatory, or to some "bureau of measurement." The uncorrected results of these measures are to be published by the several observatories. The final reduction will be undertaken by the permanent committee, as soon as the question of standard stars can be settled. It is obvious that in the final rigorous computations the orientation and scale value must always be obtained from measures of the images of several standard stars impressed on the plate. For the whole heavens, it would thus be necessary to know accurately the positions of some sixty or seventy thousand stars. Now the existing star catalogues are not sufficient to furnish these positions. It seemed, therefore, as though the final reduction of the catalogue plates would have to be deferred until the requisite number of stars could be determined in the meridian. Fortunately, a plan has been proposed by M. Loewy which will, in all probabilty, do away with this formidable difficulty. This plan consists in taking advantage of the circumstance that the plates overlap in declination by at least half their diameters. Indeed, it is obvious that by means of the stars common to two overlapping plates, we can, as it were, connect the two together, just as though they were merely parts of a single plate. For this purpose it is, of course, not necessary that the stars common to the two plates should be previously well determined. Now, as the arrangement of the successive bands is such that every plate has four others overlapping, it is clear that the above process will be equivalent to giving us a space of four plates; or sixteen, instead of four, square degrees, wherein to look for standard stars. In so large a space, the existing catalogues will almost always furnish a sufficient number. It is difficult to foresee any reason why this plan of M. Loewy's should fail; the results of a practical trial will doubtless soon be published, and will, it is hoped, set this important question definitely at rest.

In conclusion, it may be of interest to set down the names of the several observatories taking part in the work, together with the zones assigned to each for observation :—

TABLE SHOWING DISTRIBUTION OF WORK.

Observatory.	Latitude.		Decl. of Zone.		Zenith Distance.		No. of Plates.
	Deg.	Min.	Deg.	Deg.	Deg. Min.	Deg. Min	
Greenwich	+ 51	29	+ 90 to	+ 65	13 31 to	— 38 31	1,149
Rome	+ 41	51	+ 64 to	+ 55	— 13 6 to	— 22 6	1,040
Catania	+ 37	20	+ 54 to	+ 47	— 9 30 to	— 16 30	1,008
Helsingfors	+ 60	9	+ 46 to	+ 40	+ 14 9 to	+ 20 9	1,008
Potsdam	+ 52	23	+ 39 to	+ 32	+ 13 23 to	+ 20 23	1,232
Oxford	+ 51	46	+ 31 to	+ 25	+ 20 46 to	+ 26 46	1,180
Paris	+ 48	50	+ 24 to	+ 18	+ 24 50 to	+ 30 50	1,260
Bordeaux	+ 44	50	+ 17 to	+ 11	+ 27 50 to	+ 33 50	1,260
Toulouse	+ 43	37	+ 10 to	+ 5	+ 33 37 to	+ 38 37	1,080
Algiers	+ 36	48	+ 4 to	— 2	+ 32 48 to	+ 38 48	1,260
San Fernando	+ 36	28	— 3 to	— 9	+ 39 28 to	+ 45 28	1,260
Tacubaya	+ 19	24	— 10 to	— 16	+ 29 24 to	+ 35 24	1,260
Santiago	— 33	27	— 17 to	— 23	— 10 27 to	— 16 27	1,260
La Plata	— 34	35	— 24 to	— 31	— 3 55 to	— 10 55	1,360
Rio Janero	— 22	54	— 32 to	— 40	+ 9 6 to	+ 17 6	1,376
Capetown	— 33	56	— 41 to	— 51	+ 7 4 to	+ 17 4	1,512
Sydney	— 33	52	— 52 to	— 64	+ 18 8 to	+ 30 8	1,400
Melbourne	— 37	50	— 65 to	— 90	+ 27 10 to	+ 52 10	1,149
Total number of plates							22,054

REVIEWS.

The Lantern Slide Manual. By John A. Hodges. (*London: Hazell, Watson, & Viney.*)

This will be a welcome book to lantern-slide workers, for it includes all methods of slide production, and gives a great deal of information regarding the different commercial plates which are now obtainable for this fascinating branch of photography. More especially will workers be pleased with the wrinkles given concerning printing in skies, mounting, and all the other little dodges which are of so much importance to a successful prosecution of lantern-slide work.

Elementary Photography. Same Author and Publishers. This is a carefully-written book, and one which will be found of service, not only to the beginner, but to those who have had some experience in photography. It has the merit of being written in a straightforward manner, and it bears evidence that the writer draws his conclusions from actual experience.

The "A B C" Guide to the making of Autotype Prints in Permanent Pigments. By J. R. Sawyer. (*Published by the Autotype Company, 74, New Oxford Street.*)

This is a revised edition of the little manual which has for many years been familiar to workers in carbon as their "guide, philosopher, and friend." With the increased demand for carbon tissue which has come about since the Autotype Company supplied it ready sensitised and in a convenient form for handling, it has become necessary to revise this useful and plainly-worded book—a book which, instead of turning away would-be experimenters with the process—as so many professed text-books actually do—is likely to encourage them in their efforts to succeed. The company have introduced a special toned etching paper for single transfer printing; and, as a specimen of work produced by its aid, a frontispiece having for its subject Colonel Gale's well-known picture, "Sleepy Hollow," appears in the Manual. A better guide to the practice of carbon printing could not be imagined.

Portative Electricity. By J. T. Niblett. (*London: Biggs & Co.*)

This is a popularly written and interesting account of all kinds of electric lamps which, by means of primary batteries, or by the help of accumulators, can be used in a portable form. It is the chapter on the electric light applied to scientific purposes which is the one which will chiefly interest our readers, for here we find described the method of using the glow-lamp as an illuminant for the microscope, for the photographic dark room, and for the lecturer's reading lamp. At present, the sole bar to the more general employment of such lamps is the absence of stations where they can receive their charge of pent-up energy; but, in a very short time, this difficulty is sure to be met, and portative electricity will become a far more important consideration than it now is. Mr. Niblett has taken time by the forelock, and many will be glad to study the interesting little volume which bears his name.

Practical Hints on making Photographic Enlargements. (*London Stereoscopic Company.*)

This is a pamphlet which is designed to describe the manner of working with a certain enlarging apparatus which is sold by the Stereoscopic Company. It deals mostly with printing upon bromide paper, but opal pictures, transparencies, and enlarged negatives receive due attention. It is well written, and the information given is reliable.

PATENT OFFICE

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JUNE 16, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PHOTO-MICROGRAPHY WITH UNCORRECTED LENSES.

THE general public knows little of the important help which photography is rendering in various ways to the science of medicine, and it is only by occasional papers read before the various societies that we learn how much activity is being displayed in this work. Students in our hospitals have long ago recognised the value of photography in recording the aspect of preparations of a perishable nature, but more especially have they reason to be thankful for its aid in giving them faithful transcripts of microscopical objects. In days gone by the only way of obtaining passably correct outlines of microscopic objects was by means of the camera lucida. But this device, at the best, was only a makeshift, and gave the draughtsman such play for what we may call "unconscious originality," that two artists working in turn from the same object would produce results which but seldom bore any close likeness either to the object itself or to one another. And the cleverer the artist, the more valueless would often be his pictures; for his sense of what an object should look like, was apt to overcome his appreciation of how it actually appeared, and he would fill in details with a too fatal facility. All this has been changed since modern dry plates have made photography so certain and convenient in its application, and now microscopic objects can be pictured without error due to the individual caprice of the manipulator.

A group of students working together in class, each with a microscope before him, while a demonstrator sought to point out the salient features of the section under consideration, was rather a pitiable sight. For it must be evident that the different objects, even if prepared from the same section, must show peculiarities of structure and other differences most confusing to the workers, who would be apt to refer the description of the demonstrator to parts which he was not at the time explaining. With a good projecting microscope, on the other hand, or with the projected image of a photo-micrograph, no such mistake can arise, for the demonstrator is able to indicate with his pointer what he means, and all the students can follow his movements as well as his words.

It is, therefore, evident that the production of good photo-micrographs is a matter of extreme importance, and the introduction of any means by which the operation can be simplified, or by which fresh workers may be encouraged to try this interesting branch of photographic work, is a matter which should give satisfaction to all.

Mr. Andrew Pringle's recent address to the Camera Club upon "Certain Medico-Microscopical Matters" is a most valuable contribution to a subject to which few photographers give very much heed, and one part of it, at least, will prove very welcome to those who fancy that the practice of photo-micrographing cannot be indulged in save at vast expense. The price of microscopic apparatus is necessarily high, for its construction involves the very highest class of manipulative skill and work, beside which that of the watch maker or jeweller is coarse and clumsy. But Mr. Pringle points out that much excellent photographic work can be accomplished by working with lenses of an inexpensive type; and he is quite justified in saying, when he brought this matter forward, that he believes it to be of interest and importance to the medical profession at large, and especially to those members of it for whom we all have so much sympathy—namely, students who are so frequently hampered through want of means to obtain proper instruments to aid them in utilising photography for medical research.

Some time ago, Dr. Piffard, of New York, stated that ordinary, uncorrected, microscopical objectives, such as will not give a sharp photographic image under normal conditions, will do so if certain coloured media, or light screens, be introduced between the light and the condenser of the microscope. Mr. T. F. Smith, of the Royal Microscopical Society, went somewhat further than this, and pointed out that by using colour-corrected or isochromatic plates the screens might be dispensed with. These statements led Mr. Pringle to experiment in the same direction, and it will be at once conceded that a careful examination of the subject could not fall into better hands. He at once found that Dr. Piffard's statement was correct, and that a distinct benefit was gained by the interposition of a light-filtering screen. Better still was the result with a colour-corrected plate, and best of all it became when screen and isochromatic plate were used in conjunction. Mr. Pringle produced specimens of the results which he had obtained by using these old uncorrected lenses in the way described, and the images which they exhibited were absolutely sharp and faultless. At the same time he was careful to point out that, although this use of colour-corrected plates placed a new power in the hands of microscopists, the same aperture cannot be obtained with the old lenses as with the new and improved ones; and that in photographing objects optically difficult the question of aperture is of prime importance. In low-power work sharpness of image can be secured by the old lenses with the help of the isochromatic plates; but still a large field remains open for the employment of apochromatic glasses when the microscopist has to deal with high numerical aperture.

We are glad that a worker of Mr. Pringle's standing has given corroborative evidence concerning this matter. (He was most careful to point out that his position was only that of one who confirmed the observations of others.) But although he claimed nothing for himself, we must all agree that much credit is due to him for following up a line of inquiry which will be of value to microscopists at large, and to poor students in particular.

EDISON'S KINETOGRAPH.

AT last month's meeting of the Department of Physics of the Brooklyn Institute, the members were enabled to examine Mr. Edison's new instrument, known as the kinetograph. The apparatus consists of an optical lantern, a device by which a moving image is projected on a screen simultaneously with the production by a phonograph of the words or song which accompany the movements pictured. Thus, the photograph of a prima donna could be shown on the screen, with the movements of the lips, the head, and the body, together with the changes of facial expression, while the phonograph would reproduce the song.

Mr. George M. Hopkins, president of the Department, before proceeding to demonstrations of the instrument, offered a brief introduction, in which, according to American contemporaries, he said :—" This apparatus is the refinement of Plateau's phenakistoscope or the zootrope, and, like everything Mr. Edison undertakes, it is carried to great perfection. The principles can be readily understood by any one who has ever examined the instrument I have mentioned. Persistence of vision is depended upon to blend the successive images into one continuous ever-changing photographic picture.

" In addition to Plateau's experiments, I "—continued the speaker—" might refer to the work accomplished by Muybridge and Anschuetz, who very successfully photographed animals in motion, and to Demeny, who produced an instrument called the phonoscope, which gave the facial expression while words were being spoken, so that deaf and dumb people could readily understand them. But these instruments, having but twenty-five or thirty pictures for each subject, could not be made to blend the different movements sufficiently to make the image appear like a continuous photograph of moving things; the change from one picture to the next was abrupt and not realistic. In Mr. Edison's machine far more perfect results are secured. The fundamental feature in his experiments is the camera, by means of which the pictures are taken. This camera starts, moves, and stops the sensitive strip which receives the photographic image forty-six times a second, and the exposure of the plate takes place in one-eighth of this time, or in about 1-57th of a second. The lens for producing these pictures was made to order at an enormous expense, and every detail at this end of the experiment was carefully looked after. There are 700 impressions on each strip, and when these pictures are shown in succession in the kinetograph the light is intercepted 700 times during one revolution of the strip. The duration of each image is 1-92nd of a second, and the entire strip passes through the instrument in about thirty seconds. In the kinetograph each image dwells upon the retina until it is replaced by the succeeding one, and the difference between any picture and the succeeding one, or preceding one, is so slight as to render it impossible to observe the intermittent character of the picture. To explain in a very imperfect way the manner in which the photographs are produced, I (remarked the President) will present the familiar dancing skeleton on the screen. You will notice that the image appears to be continuous, but the eye fails to observe the cutting off of the light, and the image simply appears to change its position without being at all intermittent; but when the instrument is turned slowly, you will notice that the period of eclipse is much longer than the period of illumination The photographs on the kinetograph strip were taken in some such way as this. An ordinary zootrope adapted to the lantern shows the principle of the kinetograph. In this instrument a disc having a radial slit is revolved rapidly in front of a disc bearing a series of images in different positions, which are arranged radially. The relative speeds of these discs are such that when they are revolved in the lantern the radial slit causes the images to be seen in regular succession, so that they replace each other and appear to really be in motion; but this instrument, as compared with the kinetograph, is a very crude affair."

After projecting upon the screen a few sections of the kinetograph strip, the audience was allowed to pass by the instrument, each person taking a view of the moving picture, which averaged for each person about half a minute. The picture represented a blacksmith and two helpers forging a piece of iron. Before beginning the job a bottle was passed from one to the other, each imbibing his portion. The blacksmith then removed his white-hot iron from the forge with a pair of tongs and gave directions to his helpers with his small hand hammer, when they immediately began to pound the hot iron, while the sparks flew in all directions, the blacksmith at the same time making intermediate strokes with his hand hammer. At a signal from the smith, the helpers put down their sledge hammers, when the iron was returned to the forge and another piece substituted for it, and the operation was repeated.

In the picture, as exhibited in the kinetograph, it is said, every movement appeared perfectly smooth and natural, without any of the jerkiness seen in instruments of the zootrope type which have heretofore been exhibited.

A CAMERA HOLDER FOR CYCLISTS.

BY CECIL M. HEPWORTH.

ONE of the most important things in the outfit of the cyclist photographer is an efficient luggage carrier to fit on the frame of his machine, in which he can pack his camera, dark slides, focussing cloth, &c. Recognising this want, I applied for something of the kind to several makers of photographic apparatus with but very partial success. I then tried the cycle manufacturers and dealers in accessories with much the same result. Some suggested strapping the camera to the handle bar, others showed me what they called a spring carrier, which was supposed to kill all vibration, but I saw nothing designed to circumvent the arch-enemy of all travellers by road — I mean the fine, impalpable dust, which is found to pervade everything after even a short journey along a country road; dust which seems to take a delight in creeping into lens mounts, dark slides, and into every other crevice where it is not wanted. Foiled in the way which I have described, I at last resolved to make a camera carrier according to my own ideas of what one should be like, and I have found it to be so satisfactory in every way, that I do not hesitate to place a description of it before the readers of the Photographic News in the hope that it may furnish an idea upon which they may, if they care to do so, construct something similar. As will be seen on reference to Fig. 1, the apparatus consists of a strong box, supported by means of swinging brackets and springs to the front of the bicycle, the method of hanging it thereon being the same as that usually employed for a lamp. The box is constructed of half-inch mahogany and is seven inches square (outside measurement). This gives me just sufficient space to pack my quarter-plate camera, three double backs, focussing cloth, changing bag, and a dozen extra plates. I will now give some brief directions for making such a carrier, leaving it to my readers to modify the measurements—if necessary—to suit their own requirements.

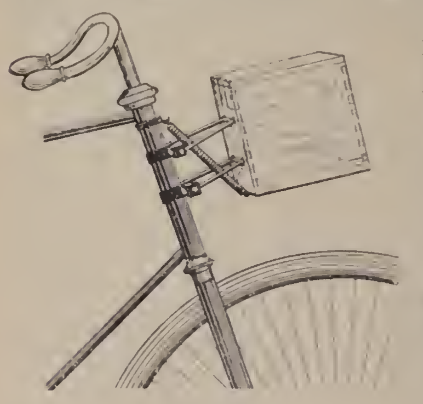


Fig. 1.

Cut out, from well-seasoned half-inch mahogany, five squares, each measuring seven inches; these are to form the four sides and the lid (the latter may be put aside for the present). From each end of all of the four remaining squares mark off by a pencil line half an inch to show the depth of the dovetails, and let this line be in a direction at right angles to the grain of the wood. Now mark off the dovetails carefully, and cut with a fine saw, afterwards scooping out those portions of one piece which are to receive the projecting teeth or tails of the other with a small chisel. After the dovetails have been carefully cut the four sides must be glued together with the very best Scotch glue and screwed up in cramps until dry. Meanwhile the bottom and lid may be cut out—the former being a trifle over six inches square, so as to fit between the sides, and it need not be dovetailed; the latter must measure seven inches square, and is hinged on, above the sides. The hinges can be obtained in the rough from any camera maker; they are of the kind made for large dark slides. The shorter arm (Fig. 4, A) must be bent at right angles at three-eighths of an inch from the

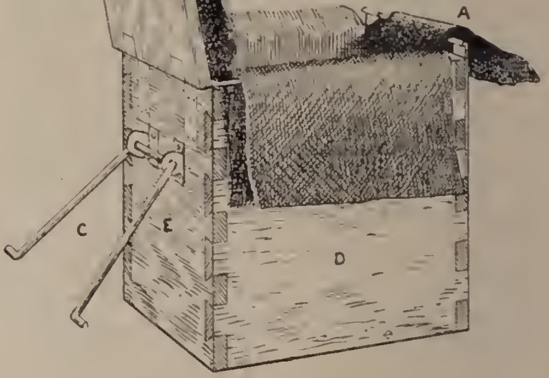


Fig. 2.

hinge, then after filing up the edges square, the hinges may be let in flush with the face of the wood. Along the front end of this lid B (Fig. 2) is a strip of half-inch brass, also let in flush, which serves to strengthen the wood, and also forms a sufficient hold for the catches A A. To make these catches, a piece of ribbon brass (of sufficient thickness), half an inch broad, and three and a quarter inches long, is placed upright in the vice, so that a quarter of an inch protrudes above the jaws: then with gentle taps of a hammer this length is turned over at right angles (B, Fig. 4). This quarter inch is then reduced to an eighth by filing, and the edge sloped as shown by dotted lines (C, Fig. 4). Two bevelled holes in each, drilled near the lower end for screws, complete the catches. They must be sunk into the wood at the edges of the front of the box. The bottom may now be glued in and held in place by two or three screws in each side. The pit for the lower portion of the hinges may be chiselled out and the lid fitted on. To close the box a slight pressure on the lid should be sufficient, the catches flying back into place directly and clasping it firmly. The next thing is to line the box with thick baize, as follows:—Cut a strip of the material, twenty-four inches long and eleven inches broad. Roll this piece up, and paint one side of the interior of the box with hot glue. Do not put too much on, or it will soak through the cloth. The roll of baize may now be unwound inside the box, pressing it firmly down, and glueing a fresh portion of the wood as soon as the first piece is covered. Now glue in a square of baize to cover the bottom. The projecting portion of the baize must be slit down at the corners as in Fig. 2. The flaps thus formed are folded over, one above the other, and help to keep the dust away from the contained camera, &c. But the chief precaution against dust is provided around the top edge of the box. Underneath the lid, a V-shaped groove is cut, into which is fastened, by means of cycle tyre cement, some round catapult elastic, an eighth of an inch thick, so that about a third of the diameter of the indiarubber stands up above the level of the wood. When the lid is forced down upon it, the rubber is squeezed out flat and forms a perfect air-tight and dust-tight barrier.

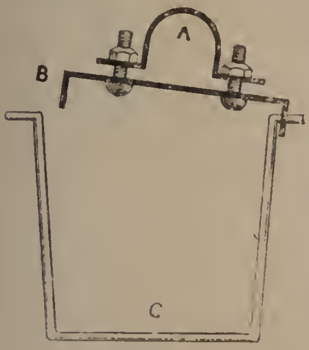


FIG. 3.

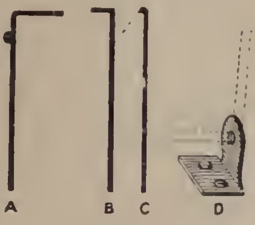


FIG. 4.

The next step is to glass-paper the box thoroughly all over, first with coarse paper to bring the brass work and wood to the same level, and afterwards with a finer paper, preparatory to french-polishing, or, if preferred, sizing and varnishing. The former is, I think, more satisfactory.

After the polish has had time to get hard, or the varnish dry, as the case may be, the work of fixing the box to the cycle may be proceeded with. Bend in the vice two pieces of three-quarter inch brass to the shape shown at A (Fig. 3), and two more to the shape of B. The former to have two holes to receive the bolts as shown, and the latter four holes, two being for the bolts, and two, in the turned-down portions, to receive the ends of the brackets C. The manner of fixing to the cycle is obvious. The brackets are made of hard nickel wire, and are held in place in the brass B (Fig. 3) by virtue of their own springiness. They are fastened to the box by picture-frame suspension plates D (Fig. 4), bent up at right angles—see Fig. 2, where one bracket only is shown—the other is to be fastened in the same manner lower down. A strong spiral spring from the bottom of the box to a hook on the cycle, as shown in Fig. 1, completes the appliance. Its advantages are, that it will carry a camera, double backs, &c., with perfect freedom from vibration and consequent chance of breakage; that it is dust-proof, and that it can be fixed to, or removed from, the bicycle as easily as a lamp. It will be understood that the portions A B remain as permanent fixtures on the machine.

INTERCHANGEABILITY OF LENSES.

At a meeting of the Photographic Society of Great Britain, on Tuesday evening last, Capt. Abney in the chair, Mr. Wm. Taylor delivered an interesting lecture on the methods of screw thread cutting employed by his firm, with a view to securing that consummation so devoutly wished by all photographers — free interchangeability of lenses of different makers. He began by demonstrating with specially prepared screws that an error of one-thousandth of an inch in the diameter of the lens was sufficient to prevent it entering the flange, after which he described the method of screw cutting now in vogue, detailed its faults, and showed by means of lantern diagrams how easily—nay, almost unavoidably—an error arises after a short time that is sufficient to render the screws so made uninterchangeable.

He then demonstrated the tools—invented by himself—which are now always used by his firm, by which all lenses can be made with screws of standard size. Mr. Taylor also described and showed diagrams of the form of screw employed for lens fittings, and tools and gauges used in cutting and measuring the different parts. He then touched on an improvement of his own, now pretty well known to photographers, by which different lenses will arrive home on one flange, with their diaphragm slots always uppermost; also the peculiar form of screw which requires three turns, and three turns only, to attach the lens to, or release it from, its flange, and with which it is impossible to cross the threads.

An interesting discussion followed, and a hearty vote of thanks was carried.

CORRESPONDENCE.

COLOUR PHOTOGRAPHY.

SIR,—M. Vidal, in what purports to be a reply to my letter on "Colour Photography," appears to say that he can refute my assertions respecting the interference method. But he has not done so, and I have good reason to believe that he cannot. Mere assertion counts for nothing, coming from one who, writing as an authority, has assured the public that my methods are the same as Cros and Du Hauron's.

Unless M. Vidal admits a comparison of the Lippmann-Lumière results with the heliochromoscope reproductions, his expression, "unrivalled accuracy," conveys no true meaning to the general public, since it might then be fairly applied to results similar to those which I saw in Paris last year.

What M. Vidal said about M. Lumière's failure to bring along the original landscape for comparison is a childish evasion of my charge that neither Professor Lippmann nor M. Lumière have ever shown any colour photograph in comparison with the original, although they might readily have done so in many cases. Evasions of this kind do not seem consistent with the claim to "search after truth," &c.

The charge that I am not disinterested is true enough; but it is no reply to my facts, and is, therefore, quite uncalled for.

The statement that I am a follower of Cros and Du Hauron is only true in the sense in which the latter gentlemen are also followers of Henry Collen. I always gave all of these gentlemen due credit for their connection with the science of composite heliochromy; while M. Vidal, notwithstanding his claim to "search after truth," has studiously ignored Collen's claims, besides persistently misrepresenting my part in this work in his published writings, after duly acknowledging it in a private letter. (*Translation annexed.*)

I am afraid M. Vidal is too "patriotic" to be "perfectly disinterested."
F. E. IVES.

[COPY.]

"Paris, March 2nd, 1891.

"MY DEAR CO-LABOURER,—I have read with a keen interest all you have written on the subject of heliochromy.

"I believe your ideas to be very rational when you assert that sensation must be more prominent in our minds than the colour taken in its intrinsic state.

"This question is worth to be again taken up and pushed more to the front, until it produces something artistic as well as industrial.

"I recognise the difficulty of this complicated operation, the diverse phases of which must be perfect, if a complete result is desired, but, as you say very truly, it can be done.

I have tried, for several weeks, to make a series of negatives tending towards the realisation of the composite polychromy, but I am not yet able to get an exact idea of the value of my plates, with reference to what they must be in a scientific selection, such as you understand it.

"In a word, I do not know how to compare their curves of intensity, with those of Maxwell, in relation to the intensity of the respective primary sensations.

"It seems to me that they can be judged only by approximation.

"I should be very grateful if you would let me know your opinion on that subject.

"Here are, for example, three proofs of the same subject of artificial flowers. I have written, on the back, the focus from which they have been obtained. I join to them a diagram indicating the corresponding colours.

"According to your opinion, is this manner of proceeding good?

"Could you send me a sample of each of your screens, and also of those for the projections?

"I would like, at least once, to be able to give a practical impulse to that so interesting question, basing myself upon your data in preference to those of Ducos, &c., &c.

"I would like to be able to create the polychrome projection with composite images.

"For this purpose, is it better to use positive monochrome images, representing only the shades, and lighted through coloured screens; or could not a greater success be obtained by projecting three coloured positives printed with gelatin and coloured by dyes?

"If I am not too indiscreet in asking your opinion, I shall receive it gratefully.

"You would also oblige me very much if you could send me a sample of your subjects in colour upon white paper (?).

"Where could I find the collection of your publications upon heliochromy compiled in a whole?

"Desirous of publishing myself a work upon the history and practice of this method, I am intent upon having from yourself precise indications, so as not to be exposed to incorrections, but I do not request you to send me certificates as did Winstonley, Vogel, &c.

"All I want is to put to light your so remarkable work, and if I can, in France, unite my efforts to yours, I shall be glad to make common cause in giving impulse to this heliochromy, and put it practically within reach of the public.

(Signed) "Very cordially yours,
"LEON VIDAL."

MR. IVES AND PHOTO-ENGRAVING—A CORRECTION.

SIR,—I notice that Mr. Ives, in his very interesting paper on "Composite Heliochromy," makes a claim which, for historical as well as personal reasons, I must traverse.

I yield to no one in admiration of the splendid work which Mr. Ives is doing in a most difficult branch of our art. I also acknowledge that in photo-engraving he has made his mark, and that it is specially to him that the net-work method has been so developed in America. Nevertheless, I must take exception to the following extract from his paper. He says:—"As long ago as 1881, when I was *the only successful producer* [my italics] of half-tone process blocks for the type press, and had considerably improved upon the older methods of composite heliochromy, without quite realising the true principle which I first published in 1888, *I made the first photographic reproduction of a coloured subject by three impressions from process blocks* [my italics]. This three-colour print, a reproduction of a chromo-lithograph, was referred to in a leading article in the PHOTOGRAPHIC NEWS, September 5th, 1884, p. 561."

Now I claim, in opposition to the foregoing, that as regards both line and half-tone photographic engraving for blocks to be printed at the type press, *Dallastype and Dallastint are the oldest processes which have been worked commercially in this or any other country.*

I am quite willing to take a back seat in favour of Cousin Jonathan, John Chinaman, or even Tibetan Mahatma, if it is *proved* that any such ingenious persons have prior claims.

The first reference to Dallastype will be found in the PHOTOGRAPHIC NEWS of July 27th, 1866, p. 360, and the Dallastint half-tone block method, in a letter of mine in the

Photographic News, July 23rd, 1875. Further references to Dallastint, which I had been working commercially since July, 1875, will be found in the Photographic News of June 15th, 1877, and June 22nd, 1877. At the former date will be found, under the heading "Photography In and Out of the Studio," that special attention is drawn to the perfection of the gradation and detail in Dallastint blocks.

Then, as to colour, I refer to a letter of mine in the Photographic News, June 22nd, 1877, p. 299, in which I mention that I had applied Dallastint to composite colour printing, under the name of Chromo-Dallastint, and I drew attention to a specimen in four workings of a very difficult subject—viz, the reproduction of a sepia drawing which I was to exhibit at the Caxton Exhibition.

I have been producing Dallastype blocks commercially since the beginning of 1869, and Dallastint blocks since 1875. During the whole period I have produced some thousands of photographically engraved blocks, not only for this country, but for America, Canada, and other places.

I claim for Dallastint blocks that they render more perfectly half-tone and detail than the net-work system. The reason why net-work is in such vogue for half-tone blocks is—egotistical as it may seem in me to say it—because Dallastint is a secret process, while the net-work method is open to all. If Dallastint were known it would supersede net-work. The natural grain in Dallastint has a far more agreeable appearance to the eye. It can also do what is impossible to net-work—viz., render correctly the detail in photo-micrographs. Further, it is more easy to print, and requires very little "making ready." With net-work, on the contrary, it is only satisfactory when the mesh is extremely close, but then it is more easily blocked up by the ink.

A combination of Dallastint grain and net-work produces a better effect than the plain net. For best results, however, Dallastint natural grain is to be preferred.

Looking backward, it is interesting to note the evolution of the net-work system. The first use of a photographic screen or veil is in that classic patent of Mr. Fox-Talbot—viz., No. 565, October 29th, 1852. He employed folded gauze to obtain his grain.

Later on—viz., twenty years after the above—Walter Woodbury, that most ingenious and indefatigable worker, patented the use of "mosquito netting" and Brussels net (see Patent 3,654, December 4th, 1872); and again in Patent 1,954, May 30th, 1873, he claimed the use of "fine ruled lines." Lastly, Woodbury obtained a patent (No. 4,735, October 5th, 1883) for the use of "fine ruled lines, netting, gauze, dots, or a print from a grained stone." Nothing really good was done by any of these methods until Mr. Ives in America introduced his net-work system, which was altogether a new departure as described in his two United States patents—viz., February 8th, 1881, and August 9th, 1881. The method consisted in using, not a screen, but an elastic lined surface which was inked, and then impressed on a relief, which could be photographed. When I saw Mr. Ives some three years ago, I understood that he had sold his rights to a firm which was still working his system. The next advance was made by Meisenbach, using a screen in some way of which I confess the patent did not give a clear idea. It, however, gave a great impetus to screen methods in Europe and America, and there are now several practitioners of the net-work style. I am bound to confess also that, given good printing conditions, very high-class work is produced, especially where copper is used instead of zinc for relief etching. Still, I do not hesitate to say that there will always be an artificial appearance, even with the finest net-work, and that in every respect the natural grain gives truer rendering and more agreeable effect. I can show examples of Dallastint, produced as far back as 1875 and recently, which, I think impartial critics will admit, bear out my contention. Duncan C. Dallas.

5, Furnival Street, June 7th.

* * *

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

10,524. Benjamin Joseph Barnard Mills, 23, Southampton Buildings, Chancery Lane, London, "The Employment of Cobaltic Salts to obtain Photographic Images."—*May 29th*, 1893. (Auguste Lumière and Louis Lumière, France.)

10,617. George Frederick Wynne, 6, Lord Street, Liverpool, "Improvements in Apparatus for Calculating Photographic Exposures."—*May 30th*, 1893.

10,685. William Jones and Hugh Jones, 6, Lord Street, Liverpool, "Improvements in, or connected with, the Production of Photographs on Slate."—*May 31st*, 1893.

10,694. W. Dawkins & Sons (W. Dawkins, Lorenzo Dawkins, and Arthur Dawkins), 37, Cox Street West, Balsall Heath, Birmingham, "A New Cross-Motion for the Fronts of Field Cameras."—*May 31st*, 1893.

Specification Published.

7,343. *April 10th*, 1893.—"Colouring Photographic Prints." C. Klary, 22, Rue de Beaune, Paris.

Consists in colouring the photograph of a paper print by the application of colours to the back of the photograph, so that they penetrate the paper and appear underneath the photographic film, as seen from the face of the picture.

The colours are prepared as follows:—Aniline colours are taken and dissolved either in water or alcohol. When the colours do not soak properly through the paper, acetic acid may be added to the alcohol.

To colour a photograph, the latter is placed face downwards on a retouching desk, so that it may be viewed by transmitted light and the design on the face may be sufficiently visible from the back to guide the artist in colouring the photograph. The colours are laid on in the usual way with a brush, care being taken not to pass over the outlines, and immediately soak through the texture of paper, and act more as dyes than surface colours.

Printed copies of the full specification of the above patent may be obtained by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

* * *

Investigations conducted by Dr. Sumpner have shown that a piece of newspaper reflects about nine-tenths as much light as a good mirror. He has tabulated the amount of light required to give the same effective illumination to a room whose walls are covered with the different substances enumerated as follows: Black cloth, 100; dark brown paper, 87; dirty wood, 80; blue paper, 72; yellow paint, 60; clean wood, 50; cartridge paper, 20; and whitewash, 15.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

June 1st.—Mr. Welford in the Chair.

Mr. P. Everitt read a paper on "The Angle of View," and drew a diagram to support his views.

Mr. Debenham said that, as for the necessity to reckon the corners of the picture in estimating the angle of view contained in a picture, that was obvious, and was, he thought, recognised earlier than Mr. Everitt had stated. As to the contention that twice the distance from the point of sight to the extreme corner must be taken as the angle to be reckoned for, he thought that was a mistake. True, that would have to be the angle which a lens would include if the back were not allowed to be swung, and, as he had a great objection to swinging the back, that would indicate the angle of such a lens as he would prefer to use; but the picture did not include that angle, nor any more than could be got by taking the diagonal of the picture for the base, and that would indicate the angle of view required in a lens which should just be able to cover it.

Mr. Beckett said that anyone would know that corners of a picture must be allowed for, and would use such a formula as that given by Mr. Haddon with that understanding.

Mr. A. Mackie said that it appeared to him that when Mr. Everitt spoke of sixty degrees as the limit of a picture, he meant sixty degrees in a horizontal direction, and that the vertical limit might be quite different.

The Chairman believed that photography had suffered a great deal from its having been endeavoured to impose upon it limitations in accordance with painters' conventions.

June 8th.—Mr. A. Mackie in the Chair.

Mr. Herbert S. Fry referred to a letter in one of the journals, from which it appeared that, at the meeting a fortnight earlier, Mr. P. Everitt had suggested that any increased range of gradation obtainable by a multiple-coated plate would be useless unless we also had a paper giving a longer range than those at present in use, and inquired whether it was true that Mr. Everitt had said so.

Mr. Everitt said that it was, and he maintained the position now. He believed that, with an ordinary plate, there was more range than the printing paper would reproduce, and, therefore, that any extended range of gradation in a plate was at present useless.

Mr. Fry supposed that Mr. Everitt was serious, but it seemed to him absurd to despise an improvement in one direction—that of the plates—because there did not happen to be simultaneously an improvement in another direction—that of the printing surface.

Mr. W. E. Debenham thought that Mr. Everitt was confounding two things that were quite distinct—amount of density, and range of gradation within that density. Suppose they had a subject with strong contrasts and with lights increasing up to the point of reversal on an ordinary plate. The densest and the clearest portions of that negative might be just suited to show the limit of black and white on a given paper; but the lights for some distance down the scale of gradation would all be very much alike. Now, with another plate exposed on the same subject, the limit of clearness and intensity might be the same as on the first plate; but, if the gradation were better, the high lights of varying degrees would show their relative brightness, both in the negative and on the print.

The Chairman said that they had on the paper a scale from white to black. It was simply a question of producing a negative to show its gradations within those limits.

National Association of Professional Photographers.

A meeting of the above Association was held at the Maunche Hotel, Sheffield, on May 26th, 1893; the President (Mr. T. Fall) in the Chair.

After confirming minutes of previous meeting, on the occasion of annual meeting, in February, at Manchester, the Secretary's Report was read. The business transacted may be thus summarised:—

Annual report, statement of accounts, and printed list of the present Council, as elected at the annnal meeting, were forwarded to the members of the Association.

Next annual meeting, to be held in February, 1894, at Birmingham, and dinner for members and friends to be arranged for. Details will be duly announced.

The members of the Council of the Association paid over £35 to the Guarantee Fund, for working the Association.

New members, elected by the vote of Council, Mr. Lid Sawyer and Mr. A. Hollis.

The Secretary said he was continually receiving communications of various kinds, from all parts of the world, evidencing the fact that the N.A.P.P. is now fully recognised as the official representative of the profession.

The establishment of a photographic club and institute was heartily approved by Council, and it was noted that the President, Mr. T. Fall, had been requested to act as a member of the Provisional Committee of the Club.

Respecting the very important case of the most unjust prosecution of Mr. Cowley, the Secretary gave full particulars of the correspondence on the subject between influential members of the N.A.P.P. It was felt that, while every member of the Association sympathised with Mr. Cowley, the Association was not in a financial position to take up his case, and to institute legal proceedings on his account, especially as he was not a member.

Council gratefully recognised the active part taken by Mr. Fall in the matter, and he detailed the action which he was taking for the benefit of Mr. Cowley, on his (Mr. Fall's) own responsibility, and without in any way compromising the Association or its funds.

A desire was expressed that members should send in, to the Secretary, suggestions and designs for "Certificate of Membership," which it was agreed, at the annual meeting, should be issued to members.

Referring to suggestions from Mr. W. P. Marsh, as to traders and manufacturers supplying the members at special advantageous terms, Council was of opinion that the number of members of the Association (146) now warranted their demanding such advantages. The President kindly undertook to procure data as to the terms on which makers and traders would be willing to comply.

Mr. R. Slingsby, having brought forward the subject of certificates of skill and capacity to be issued to assistants, the President dwelt, at length, on the unpractical character of the certificates now issued by the London Polytechnic Institution, which were merely good for a limited "chemical" knowledge.

The Council expressed strong wishes that some system should be adopted to bring really capable, duly qualified assistants within reach of the professional photographers. The Secretary was instructed to communicate with the Secretary of the Polytechnic Institution, with a view to some arrangement, so that before such certificates were issued the students should be examined by some representative, capable, and experienced photographers.

Mr. Eddison brought forward the subject of the present unjust mode of dealing with photographers by the fire insurance companies, as regards compensation for loss of negatives. He spoke from personal and painful experience in the matter, and stated that, instead of the insurer recovering the amount which he insured for, the companies only paid upon a proved average of the actual sales from negatives on stock over a given period, making the amount refunded about one-fourth of that on which the insurer had been paying all along.

The Secretary was instructed to communicate with Mr. Eddison, and his assessors (Messrs. East & Haslam, Leeds), with a view to procure some alteration in this most unjust mode of procedure.

Next Council meeting will be held at Anderton's Hotel, Fleet Street, at the time of the opening of the Pall Mall Photographic Exhibition, London.

THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.

THE meeting of judges of photographic exhibitions, which has been already mentioned in our columns, will take place at 50, Great Russell Street, W.C., on Tuesday, June 20th, at 7 p.m.

Meeting of Delegates, June 6th, Mr. ANDREW PRINGLE (P.S.G.B., and West Kent A.P.S.), Chairman, presiding.

The minutes having been read and confirmed, a balance-sheet up to April 30th, showing a balance in hand of £27 7s. 10d., was read by the Secretary and adopted.

It was proposed by Mr. BICKERTON (Richmond C.C.), seconded by Mr. CRESWICK (Greenwich P.A.), and carried, that a balance-sheet should be prepared by the Treasurer up to the 31st December in each year, and having been audited by two auditors appointed at the first meeting of delegates in the same year, shall be presented at the first meeting in the ensuing year.

Messrs. Hodsoll (North Kent A.P.S.), and Beckett (Hackney P.S.), were appointed auditors for the current year.

It was proposed by Mr. MARCHANT (North Middlesex P.S.), seconded by Mr. BICKERTON, and carried, that Mr. Scamell be asked to continue to act as Treasurer.

A discussion took place upon the question of approaching the railway companies with a view to the reduction of fares to photographers; a letter from the Birmingham Photographic Society having been read upon the subject.

Mr. HORTON (Birmingham P. S.), detailed the steps already taken by his Society in the matter.

The SECRETARY announced that the aggregate number of members represented by the Affiliation was roughly 5,000. A committee, to consist of Messrs. Mackie (P.S.G.B.), Oakden (South London P.S.), and the Secretary, was appointed to investigate the whole question of reduced railway fares to photographers, to report at the next meeting.

A letter from the Hon. Sec. of the P.S.G.B. was read announcing that that Society was arranging for a Congress, and asking for the consent of the Committee for the words, "of affiliated societies," to be added to the title, "The Congress of the P.S.G.B."; which was agreed to. The letter also asked the delegates to invite suitable members of their societies to furnish papers for the Congress.

The CHAIRMAN announced that the papers already promised were from men of the very highest standard in the photographic world. He also made some remarks as to the powers of the Committee of Delegates, and after some discussion it was resolved that a sub-committee be appointed to consider the question of additions or alterations to the existing rules, on the understanding that their recommendations should be on the agenda paper of the next meeting. The Sub-Committee to consist of Messrs. Mackie and Marchant.

It was agreed that the hour of meeting should be 7.30 p m.

A discussion took place upon the subject of a uniform ticket, and it was understood that the Secretary should urge the affiliated societies to have their members' tickets stamped with the affiliation stamp.

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

THE titles of the following two papers arrived too late for the list published last week:—"Our Pictorial Failures," by the Rev. F. C. Lambert, M.A.; "Latitude in Exposure and Speed of Plates," by Dr. F. Hürter.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, held Tuesday, June 6th.—Mr. E. PUTTOCK in the Chair.

MR. BORROW was nominated, and Mr. Magnus elected a member.

The HON. SECRETARY distributed samples of the Barnet plates, and asked those members who took them to give in their report at next meeting. He had used a large number, and was very favourably impressed with them.

Mr. A. DEAN then gave in report of excursion to Loughton on Derby Day, which concluded with a social. Work was then shown by Messrs. HENSLER, DEAN, RICHARDSON, and WIRE. The rest of the evening was devoted to a private exchange and sale, the idea being that many members had accumulated a lot of photographic accessories, which were useless to them, but would not be to others.

The excursion on Saturday was announced to be to Kew and Richmond.

TOOTING CAMERA CLUB.

Meeting held on Thursday, June 8th, at Headquarters.—Mr. DOLLERY in the Chair.

MR. L. E. MORGAN and Mr. V. Robinson were elected members.

Mr. DOLLERY gave a practical demonstration of the use of cresco-fylma, a preparation for stripping and expanding the gelatine film of a negative, transparency, or lantern slide. Two quarter-plate negatives were successfully operated on.

Mr. Dollery works according to the instructions given on the bottle, with the exception that he advises the use of tepid in preference to cold water in the second bath, as the film expands more quickly.

A transparency on an Alpha plate was immersed in the solution, but it immediately faded away. At the desire of those present the process was carried out to ascertain the greatest amount of enlargement that could be obtained.

Mr. CHILD, on examining the film, which was of a dirty yellow colour, drew attention to the fact that the image was still intact and perfect, presenting an appearance similar to that obtained by the bichloride of mercury bath. He recommended that a hydroquinone developer should be tried with a view to reducing the compound that evidently had been formed.

Mr. BERGER agreed with this view, and said that no details were wanting in the picture.

The suggestion was acted upon, and with complete success, the image re-developing up slowly, but yielded a vigorous picture.

The only difference was that before treatment the tone was of a greenish black, but afterwards a warm sepia. This change was no doubt due to a constituent of the cresco-fylma, as the film was unwashed.

A vote of thanks was given to Mr. Dollery for his lecture.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, June 5th, at Hanover Hall, Hanover Park, Peckham.

SOME work from samples of Lomberg plates were shown. The negatives given by these plates are of a very soft character, and are therefore particularly well suited for portrait work. In consequence of Mr. A. R. DRESSER being taken suddenly ill, his paper on "Enlarging Hand-camera Negatives" was postponed. Some information on the use of metol as a developer was given. It was found to have excellent keeping qualities. A developing solution, left in a graduate for a week, was capable of producing an image with ease. It did not stain, and would develop several plates in succession. Less exposure was required than with pyro. Over-exposure was readily dealt with. Density was more readily obtained with it than with amidol, and it does not stain the fingers. Very fine transparencies were obtained by its use. Specimens of the "Uno" and "Queen" hand cameras were shown, and placed in the hands of members by the manufacturers for trial and report to the next meeting.

Attendance, 52.

NOTTINGHAM MECHANICS' INSTITUTION CAMERA CLUB.

THE second excursion of this Club and friends took place on Saturday, 10th inst. The party met at the Midland Station at 1.25 p.m., and travelled in specially-reserved compartments to Alfreton, then took the picturesque route through the fields to Wingfield Manor, whose historic ruins are chiefly remembered as having once, during its possession by the Earl of Shrewsbury, been used as a prison for the ill-fated Mary Queen of Scots. On arrival, tea was found to be ready, and was partaken of by the members and friends, numbering upwards of fifty, in the shade of the ruins, after which cameras were speedily in requisition. A short business meeting was held for the election of three new members, and it was decided, if possible, to arrange for a whole-day excursion on July 6th, either to Dovedale or Millersdale, a small sub-committee being appointed to arrange details. Votes of thanks to the Chairman and Secretary closed the meeting.

About half-past seven the members started for a leisurely walk to Alfreton, where, through the kindness of the railway company, reserved compartments had been placed for the party on the 9.0 p.m. train to Nottingham, where they arrived about 10 p.m., after a very enjoyable outing.

ROTHERHAM PHOTOGRAPHIC SOCIETY.

Monthly Meeting, June 6th.—Dr. BALDWIN (President) in the Chair.

GOOD attendance of members. It was announced that the Rotherham Corporation had offered the use of a room in the Clifton Park Museum for a representative display of the Society's work. Mr. Jerome Harrison's Warwickshire Survey paper was discussed, and, afterwards, a resolution was passed recommending the committee to consider the best means of conducting a photographic survey of the Rotherham district. Negatives and prints resulting from the Ingleton excursion were exhibited and criticised. Three new members were elected

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

ABBOTT.—The device which you describe is almost identical with Beard's camera clip which was introduced seven or eight years ago. We do not know whether this useful contrivance is still on sale, but you might inquire of the dealers. Two or three other somewhat similar supports for the camera have been brought forward; but we fancy that this was the most serviceable for the work which you have in hand.

J. M. A.—"Washed" and "unwashed," as applied to collodion emulsion, are terms well understood by workers with this process. As a fact, all such emulsion is washed, either before the plate is coated or after it is applied to the glass. Mr. Brook's emulsion would be an example of the first, and Canon Beechey's of the second.

N. P.—The so-called blue or cyanotype process can be applied to glass, and a method of doing so was published some time ago in one of the annuals. If we remember rightly, the plan advocated was to soak a gelatinised glass plate in the two solutions, just as if paper were being sensitised, and to dry and expose under a negative in the usual way.

SIX OF US.—The best compound for painting bright machinery previous to photographing it is light lead colour, such as you can buy in tins ready prepared for oil-painting, thinned down with turpentine or naphtha until it will dry without any shine. If under this treatment the paint should become too thin, add dry white lead and lampblack with discretion. A good plan for photographing bright silver vessels is to fill them with iced water, when the deposition of dew on the outside will take off the troublesome high lights.

XX.—The remedies for collodion emulsion not adhering to the glass are numerous, and if you have tried them all and have failed with each, we should think that the emulsion must be far too thick. Thin with equal parts of ether and alcohol. If this should not prove efficacious, paint the outer edge of the coated plate, as well as its surface edge, with a thin line of Bates' black. This, as it were, seals the film to the glass, and prevents any developer or other liquid getting beneath it. The black should not be applied until the plate is thoroughly dry.

MULBERRY.—Printing on silk is as easy as the same operation on albumenised paper. To each ounce of water take five grains of gelatine and five grains of common salt. Soak the silk in this and hang up to dry. When dry, sensitise in a 50-grain silver bath, dry and treat in every way as in the case of albumenised paper.

K. P.—Try the method which was first published in the PHOTOGRAPHIC NEWS a year or two back. Support the camera vertically above the objects to be photographed, placing them horizontally on a sheet of clean plate glass. The plan was originally recommended for flower photography, but, as you will see, can be readily adapted to your purpose.

D. D.—We regret that the matter is of too contentious a nature for admission to our pages.

CYNIC.—A hand camera with roll-holder is by far the best thing to use for cloud effects, not only because it is readily manipulated, but also because the film negatives can easily be cut about, and printed from either side according to the lighting of the negative with which they may be afterwards associated.

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1816. JUNE 23, 1893.

NOTES.

THE World's Columbian Exposition includes, among its other wonders, an exhibit of windmills. These are not of the pattern seen all over our southern counties, and particularly on the Sussex downs round about Brighton, but are of the circular shape, like those which are placed on one or two factory roofs in London, and have been the cause of some litigation. The *Scientific American* publishes a picture of this unique exhibit from a photograph, the original negative having evidently been taken when the mills were in full blow. The result would please the most fuzzy of the new school of photography.

THE same journal publishes photographic process blocks of the broken shaft of the steamship *Hecla*—a vessel which broke down like the *Umbria* did a few months ago. As in the case of the *Umbria*, too, the broken shaft was temporarily repaired while the vessel was at sea.

THE *Photographic Times* calls attention to a curious foreshadowing of composite photography in a circular issued by one Mascher, of Philadelphia, in 1853, with reference to stereoscopic daguerreotypes:—"I have taken a gentleman's picture on one plate and a lady's on the other, and by placing them in the stereoscope they were blended together, producing the most astonishing effect. The resulting picture is not a true likeness of the one or the other, yet possesses the most prominent features of each, making a picture wonderfully like one of their children."

WE are informed that Mr. J. B. B. Wellington, who has just completed a three years' contract with the Eastman Company as general manager of their works at Harrow, will now join Messrs. Elliott & Son, of Barnet, who have secured his services. Messrs. Elliott inform us that in a few weeks they will place upon the market some new plates of extreme rapidity.

PROFESSOR BURTON lately contributed to *Scraps* a couple of pictures identical in appearance, one of which was from a negative which had received three seconds' exposure, while the other was from a negative which had had one hundred and twenty seconds—both taken on the same occasion upon plates from the same box, and employing a very small stop. These pictures illustrate the latitude of exposure possible with gelatine plates, provided that the operator knows how to balance matters in development.

"AYE, there's the rub." We fear that the great majority of photographers know very little of the power they possess to compensate for errors of exposure by judicious development. It is a matter that does not trouble the studio man, for his exposure is necessarily always right, and the same developer all round brings up the various pictures. It is the amateur who gets puzzled over the matter and wastes plates, generally because he lacks the virtue of patience.

AS Professor Burton points out, the whole secret of the matter lies in a nutshell. With the three second exposed plate he used one grain of pyro to the ounce of developer, and the merest trace of bromide, and with that which had received forty times three seconds' exposure be used eight grains of pyro and no less than ten grains of bromide. But the over-exposed plate occupied twenty minutes in development, and this is where the patience comes in.

IN spite of the increase in the army of amateur photographers during the last ten years, we doubt whether the photographic chemical manufacturers have benefited very much so far as nitrate of silver is concerned. Wet plates, with their drainings into the dark slide, drippings on to the floor of the dark room, and silver intensification, were very wasteful. Still more wasteful was the average photographer's method of sensitising his albumenised paper. All this, practically, has disappeared, and the amount of silver thus saved may be fairly put against the increased demand for the more economical—so far as silver is concerned—demand for dry plates and ready sensitised paper. The platinotype process, no doubt, has had its effect, but in too small a degree to be reckoned with at present.

In the old wet-plate days the photographer did spill his silver solution about most wastefully, and often in his carelessness he left marks behind him which were not forgotten. Frequent were the complaints about black stains on the floors of churches and old mansions which had been thrown open to the photographic artist, and memories of these outrages still remain in the question occasionally asked: "Will the chemicals make any mess?"

The amateur photographer may indeed pride himself on the circumstance that his hobby is inoffensive and hurtful to no living thing. He does not live to kill as does the sportsman; he abstracts nothing tangible from Nature as does the man who "collects" ferns, insects, and rare birds. Their eggs, &c., are abstracted by other hobby-riders, and much positive harm is done in the extermination of certain species. But the photographer lets all these things alone, and only desires to cast his one eye upon them.

Photographers who are interested in hearing what painters think about their work should read the current number of *The Studio*, which contains not only an excellent article by Mr. Andrew Pringle, entitled "The Naissance of Art in Photography," but a number of replies from different artists to a question addressed to them by the Editor, intending to discover "Whether the Camera has, on the whole, been beneficial or detrimental to Art?" This query was not intended to be taken in a commercial sense, but to ascertain if the conventions hitherto accepted by the painter have been modified since its introduction.

In reply, the President of the Royal Academy says that he thinks "photography may be of great use or the reverse to an artist, according as it is used with or without judgment and intelligence." Mr. Alma Tadema is convinced "that the camera has had a most healthy and useful influence upon art." Sir John Millais thinks "it has been beneficial, and is often of value to the artist." Mr. Frith thinks that "photography has not benefited art, 'but has been injurious in destroying engraving and miniature painting.'" Often artists hesitate to give any opinion upon such a debateable point, but Mr. Pennell's answer is worth quoting at length: "I don't think photography has had any influence upon modern art at all—that is, upon the art of men like Whistler, Degas, Chavannes, Rodin, Gilbert, and Gaudeur. The use of photographs by artists, however, is a very different matter, and I do not propose to give away the tricks of the trade. By refraining I have no doubt I shall receive the silent blessings of the multitude of duffers among whom I find myself.—Yours truly."

Apropos of extending the privileges of anglers to photographers in regard to a reduction in railway fares, it may, perhaps, be as well to know how the railway companies look at the matter. We had an opportunity this week of talking with a responsible official on one of the northern lines, and we found, according to him, the companies held very decided opinions on the subject. "To begin with," said he, the great body of anglers are persons in humble circumstances, and this argument the companies think cannot be used on behalf of amateur photographers. Then, as a rule, they use only the line at times of the day when there is but little traffic, and ordinary passengers are not incommoded. As for the Plymouth Convention, if a number of photographers journeying from the metropolis like to arrange to start at the same time and return together, no doubt some arrangement might be made."

"But," we urged, "it might be difficult for forty or fifty amateurs to arrive at this unanimity. Could not a number of tickets be purchased at a reduced rate and be made available for travelling by any train? This is the plan pursued on the Continent on similar occasions. Indeed, this applies to conventions and congresses in every branch of science." "Well," said he, "a railway supported by the State can do what it likes. A private company is in a different position. I do not know that railway companies are called upon to act as patrons of the sciences. This is more the duty of the Government. Why do you not persuade the Department of Science and Art to give you a small grant in aid of your travelling expenses on these occasions?" There is something, it may be admitted, in this argument; but we must confess that the prospect of getting anything out of any Government Department for such a purpose is hopeless. We have more faith in the conversion of railway companies.

The Russian Government has been quick to recognise the value of photography in legal proceedings. It has instituted a photographic laboratory in connection with the courts of justice, the object of which is the verification of the authenticity of legal and other documents.

PATENT OFFICE LIBRARY

IS THE PRESENT CONSTRUCTION OF STUDIOS WRONG IN PRINCIPLE? *

BY W. H. HARRISON.

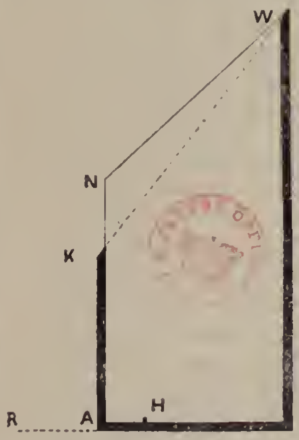
IN the construction of photographic studios, whenever possible, the chief light is obtained from the north, and the studio is principally glazed on the northern side; by this method direct sunlight is cut off from the sitter and steady illumination is obtained. Hence the light most used by photographers is that reflected by the particles floating in the air; for if no particles were there to throw back the light of the sun, we should have the black sky sometimes witnessed in the Alps when the air is extremely dry, and then might almost as well use the light reflected by an unglazed black-board. It is the same with the sea. Within a few miles of the shore we get different shades of green, which grow clearer as the land is left behind, but farther out the sea appears of a dark indigo colour, because of the scarcity of floating particles to reflect light to the eye. If, then, Professor Tyndall's plan be tried of putting a particle of large size into the sea, by flinging a white dinner-plate overboard, that particle reflects green light to the eye as it sinks, and would do the same were it broken into myriads of smaller particles.

Before coming to the practical part of the subject, it is necessary to consider the nature of our reflecting screen in the northern sky. The floating particles in the air of towns consist of minute drops of water, innumerable spores or small seeds, greasy coal smoke, fragments of dried horse-dung, influenza and other germs, and dirt of endless varieties—including dust from meteoric stones rendered incandescent by friction when entering our atmosphere at planetary velocities. These solid particles favour the precipitation of water, so also, in a still greater degree, does the sulphurous acid given off from our coal fires. These aggregated varieties of floating dirt are, to some extent, rendered visible when a beam of sunshine is reflected by them so as to mark its track, when the beam enters a dark cellar through a hole in a shutter; we also see them floating in the light coming from the projection lenses of the magic lantern, and we swallow them wholesale with every breath of air which we take into our lungs. These dirty particles, then, form our reflecting screen in the sky to the north of the studio.

Sometimes we get a better reflecting screen, consequently more light in the studio, when cumulus or other clouds in the north are illuminated by the sun. This improvement is but partial, because the clouds present also portions of their shadow sides, and do not cover the whole of the northern area in view.

The question I now wish to raise among those present who know so much more about glass studios than myself—who am not the happy possessor of one—is, whether it would not be better to abolish the floating dirt reflector and diffuser, to abolish even the floating cloud, and to provide a cloud of our own which shall be always there, which shall present to the eye no shadow worth mentioning, and shall be of a pure white. I mean a white-washed wall; for experience with the lantern has already demonstrated that, as a dead-white reflector and diffuser of light, nothing excels common whitewash.

Supposing these ideas to be correct, the result is that we shall have to build studios with a southern aspect, glazed high up on their southern sides. The accompanying diagram will show what is intended, for verbal descriptions of mechanically constructed objects are liable to confuse both listeners and readers, unless illustrated by drawings to show exactly what is meant. The suggested studios will be high in proportion to their breadth; for instance, let A B be the end of a little studio 12 feet wide, then the white-washed wall W B, say of an adjoining building, should perhaps be 24 feet high. The southern side of the studio is boarded up, except for special purposes, to a height—A K—of say 10 to 12 feet all along the side, and the glazed portions are at K, N, W. Thus the rays of the sun entering the studio from the top left-hand corner, fall upon our artificial cloud, or white-washed wall W B, which wall, under the circumstances, then gives the chief light for the illumination of the sitter at H.



Into minor details it is not necessary to enter. Of course the studio, as at present, will have to be boarded at the opposite ends, also along the roof N W and the side N K, for a short distance from the ends. Blinds for regulating the major light should be of neutral or dark tint, and moveable along the face of the wall W B; blinds also near the glazed portion of the studio will be useful. Incidentally, it may be pointed out that if A be a garden wall with a street on the southern side at R, that wall can be raised to K, and a good studio built at A B, without enabling boys in the street to make remarks for the calming of the minds of the sitters; for street boys, not being 10 or 12 feet high in these latitudes, will be unable to see into the studio. It would be difficult to build upon the ground a good present-day studio if there were a brick wall and street to the south and a high house to the north. If the glazed roof had the pitch K W, the suggested studio of the future might do nearly as well, and would shoot off snow capitally. This kind of lighting might also be obtained by building a studio of the usual Noah's Ark shape, and taking the chief working light from the white-washed side of a dwelling-house to the north, but in the preferable lean-to studio pictured, a lower roof and a white-washed house-wall outside and above it, would not give as good lighting, because the light from the outside wall would fall upon the glass roof at such a grazing angle as to be

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* A paper read before the London and Provincial Photographic Association, May 11th, 1893.

largely reflected off outside without entering the studio at all. The boarded side—K A—might be made of large sliding partitions, to be pushed back into the two ends of the studio, and then expose a glazed surface, so as to take direct light in from the south upon those winter days during which the photographer is glad of any light he can get.

Peradventure those portrait photographers who have taken special notice of the extent to which exposures are shortened when the northern sky is filled with clouds illuminated by the sun, may be able to make some kind of guess as to the extent to which studios of the kind now suggested may expedite exposures, and lengthen the average photographic working day, remembering, also, that the white-washed wall presents a more uniform white surface than do masses of cloud. In the remarkable weather we have had for the last six weeks, of almost unbroken sunshine, I have noticed that there have been scarcely any bright clouds, at least within a circle of a mile or two of the Crystal Palace, for, being engaged in some new investigations in relation to gelatine emulsions, I have specially noticed the absence of clouds when I was frequently out of doors trying plates. Had portrait photographers had a white wall to north, instead of the grey haze of an average cloudless London sky, they would have received even better light in the studio than during April and May last. Some comparative experiments on the light from the northern sky, and the light from a northern white-washed wall, made with the sensitometer of Mr. J. B. Spurge, of London, which is one of the most accurate instruments we possess in photography, would be exceedingly useful. They should extend over a considerable length of time, and be made under different conditions of weather and elevation of the sun.

Having raised the major question before you—who know so much more, practically, about glass studios than myself—whether photographic glass houses should not be glazed on the south instead of the north, and have an artificial reflector and diffuser, it is not desirable tonight to go into minor details about studios. Many of those in existence are too short; there are reasons in portraiture, as in landscape work, why more pleasing results can be obtained by using lenses of longer focus than those usually employed; in fact, if a photographer had light enough, and a studio long enough, there is much to be said in favour of his using single combination lenses of long focus for portraiture. Supposing the studio to be built of glass and wood, there is much to be said in favour of making its walls and roof double, with an air-space between; it would be much warmer in winter and would economise fuel; some studios are built in this way in St. Petersburg. There are considerable advantages in the use of iron instead of wooden bars for glazing. The developing-room should not be a small death-trap, but, when possible, a good-sized room in the adjoining dwelling-house, and fitted up as a laboratory. When, however, it is built as part of the studio, it should be a large room at the opposite end to that occupied by the sitter, and the door should so open that the camera can be used from inside the developing-room when it is desirable to place it at an exceptionally long distance from the person to be photographed. All these, however, are matters which have been previously publicly considered, but the major problem mooted in this paper is new, so far as I know, and I have recently made some search into the literature relating to glass studios. In photography it is dangerous to say that anything is new. Whether the problem before us is or is not new matters little, so long as, in the discussion, it brings forth from your stores of knowledge some information which will be useful to the public.

THE USE AND ABUSE OF BROMIDES.

BY A POSTULANT.

IN the April number of the *Journal* my attention was drawn to a remark in the report of the "Demonstration of Developments." The writer said that Mr. Ewing "advocated the use of pyro, with a mixture of carbonates of potash and soda, as accelerator. *The use of bromide as a restraining agent, or of any other means of securing what is termed a 'plucky' negative, he earnestly deprecated, as in his experience he had always found that such negatives could not be made to yield good prints.*" I have italicised the words on which I wish to base my parable, as they afford me the peg on which I have long desired to hang an article on the use and abuse of bromides in developers.

I may premise that the report, though carefully drawn up by a sympathetic hand, is not strictly accurate. I was present at the demonstration; and my impression was that Mr. Ewing did not condemn the use of bromides as restrainers in all cases, but that he deprecated their use with the particular developer he was at the time employing. That my impression was correct, a reference to the demonstrator has proved. For the information of my readers, I may say that the developer used is the one supplied by the Society to members using its dark-room, and is composed of—

Pyro Solution.

Pyrogallol	1 ounce.
Sulphite of soda	2 ,,
Citric acid	¼ ,,
Water to make up	10 ,,

Alkaline Solution.

Sodium carb.	1 ounce.
Potass. carb.	1 ,,
Potass. ferrocyanide	1 ,,
Water to make up to	10 ,,

Now in a developer so compounded, it does not require a deep knowledge of chemistry to see that one of the salts formed is the citrate of soda, which has a marked restraining action, and is one of the best preventives of "fog" in negatives. The addition of a bromide to such a developer is obviously unnecessary. I may even say with Mr. Ewing that a bromide was not only unnecessary but hurtful in the developer, and I shall attempt to prove my assertion in this paper.

It has become too much the fashion in these latter days to argue on assumed data. Had I a point to maintain, I should have no difficulty in defending my position on arguments based on some other person's undemonstrated conclusions. My object, however, being solely to ascertain the truth, I introduced a healthy variety into the ordinary procedure by resorting to actual experiment instead of quoting the words of a fellow-worker. I placed four Carbutt's "Eclipse" celluloid films in my dark slides, erected the camera and focussed for an open panoramic view with a few dark but well-lighted trees in the foreground. I exposed three of the films on the view, giving them as nearly as possible equal exposure. First, I pulled out the slide shutter a couple of inches and uncapped for one second; then I pulled out the shutter another two inches and uncapped again for exactly one second; and so I proceeded, drawing the slide shutter each time two inches and exposing for one second till I could draw the shutter out no more. By that time I had exposed the film in five sections, the last receiving one second's exposure, the next two seconds, and so on to the bit first exposed, which received five seconds. Each of the three celluloid films was so treated; each was exposed in five sections, and the exposure of the sections ranged from one to five seconds. To test the effects of restrainers, I took first one of the films (X) and divided it lengthways into two portions, A and B; next I placed in my measure glass six grains of pyro dry, and to it I added six ounces of water. Then from a bottle containing a 10 per cent. solution of potass. carbonate I dropped three minims of the alkali into the pyro solution, and with it flooded the two pieces of the celluloid film X. As there was no bromide or other restrainer in the developer, a "flashing up of the picture" (I dearly love the words of the texts-books, though I do not now take them seriously) might have been expected; but there was no such thing. A lapse of three minutes showed no trace of reduction on the plate. Three minims of alkali were then added. After three more minutes' wearisome rocking a faint image appeared over two-thirds of each of the portions A and B of the film X. I could not see any difference in the development of the image in the various sections that had received five, four, and three seconds respectively. The sections that had received two seconds and one second came up more slowly than the others, but the distinction between the sections was not very marked. As development proceeded, I saw that there was sufficient potash in the developer for some portions of the plate, but not enough for others. From X A I cut off the sections (5, 4, and 3) that had been sufficiently developed and placed them in the fixing bath. I allowed X B to remain in the dish. I then strengthened the developer by adding six minims of the potash solution. Sections 5, 4, and 3 of X B darkened rapidly and became black all over, in a few moments. Development of sections 2 and 1 of X A and of X B proceeded more gradually, but in two minutes they also were black all over, and they were then placed in the fixing bath. On taking the pieces out after fixation the characteristics observed were: (1) discolouration of the film; (2) sections 5, 4, and 3 of X B were fogged; (3) sections 5, 4, and 3 of X A were free from fog and well developed; (4) the distinction between sections 5, 4, 3, 2, and 1 of X A, and of sections 2 and 1 of X B, was very slightly marked, but the gradation of the tones in each was very delicate and well preserved.

(*To be continued.*)

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PHOTOGRAPHY IN AUSTRIA.

BY RUDOLPH SCHWARZ.*

Life-sized Portraits by Magnesium Light and Daylight.

WHY are life-sized portraits in photographic practice generally produced in a roundabout way by means of enlarging and retouching? Probably because attempts at direct photography did not until lately produce even approximately satisfactory results.

Direct life-sized pictures could not succeed even with the best and largest double objectives, because the latter were wanting in the necessary depths of definition, and produced a flat, fuzzy picture, which had to undergo thorough retouching and working up in the negative and positive if it was to be of any service. But if everything has to be left to the efficiency of the retoucher, both in making an enlargement and in the direct exposure, then the least credit for the final result belongs to photography.

For these reasons, it may be of general interest if here I briefly describe a simple, direct process for taking life-sized pictures, which after a number of attempts I succeeded in establishing at the beginning of last year. Several German photographic papers contain long reports of the description of this method, which I gave to the Photographic Society of Vienna in March, 1892.

By my purely photographic method, every photographer, after a few attempts with the simplest means, is able to produce a life-sized portrait correctly lighted, richly modulated, with such realistic faithfulness that even the structure of the skin can be recognised. On the other hand, by focussing differentially it is possible to suppress these details and to produce a less harsh picture, yet one far more life-like than by the usual methods. In my negatives there is but little room for retouching; it has to do only with removing faults in the skin and softening down the intense shades, because both these are much more marked on the sensitive plate than they appear to the eye in the living sitter. Doing more to please the perverted taste of the public would be an evil, and would degrade photography just when it is about to rise from the every-day level to real artistic elevation.

The objective I use is either a simple periscopic convex lens, a simple spectacle glass 40 to 50 cm. in diameter, or an achromatic lense 78 mm. in diameter, for landscape plates 60 × 70 cm. With a focal length of 70 to 115 cm. and stop $f/60$ to $f/40$, they both have sufficient depth of focus to give good definition in all parts of a life-sized half-length picture. The distance between the camera and the sitter, and the extension of the former for life-sized portraits, is double the focal length, therefore about 140 to 230 cm., a distance which has always proved sufficient to avoid exaggeration of the perspective. The following considerations show this to be a matter of course. A painter draws a life-sized half-length portrait at a distance from the sitter of hardly more than two metres, and for the sake of comparison uses as one of his objectives one eye, shutting the other. A life-sized portrait is viewed at a similar distance, and we get a life-like impression of a person only when at a small distance. Therefore, there is no reason apparent why a lens with a suitable stop, therefore freed from its inherent source of error, should not produce a correct picture within the given focal length, all the more as, according to the rules of art, the head is not represented of its exact size, but, as in painting, about one-seventh smaller.

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* From Dr. Eder's "Jahrbuch."

A simple spectacle lens as objective has the advantage over the achromatic landscape lens that, in consequence of the thinness of the glass, it produces more brilliant pictures, so that, with good daylight and *f*/40 stop, an exposure of six seconds is sufficient. A slight inconvenience consists in the necessity for correcting its focal difference. In the interest of good definition this must not be accomplished by stopping down too much, but in the following manner. To obtain good definition with a spectacle glass, focus for the eye, and then alter the distance between the ground glass and the objective by as much as the difference between the optical and the chemical focus amounts to. This shifting with a simple lense of 95 cm. focal length—that is, an extension of about 130 cm.—was 5 cm. towards the objective. Owing to the difference in glass, the focal difference of every such spectacle lens should be ascertained once for all by experimenting ; for instance, taking a hand in life-size on small plates, in order to be sure of a good result with larger sizes. By the way, regard being had to this correction, such spectacle lenses of greater or less focal length can very well be used for all kinds of photographs, as portraits, groups, landscapes, nay, for architectural pictures (this last for all sizes), and also for instantaneous work out of doors with a good light. Professor Watzek has been very successful in this last kind of work. The spectacle glass, with a stop of *f*/120 to *f*/150 and correspondingly lengthened exposure, shows astonishing depth of definition and freedom from distortion. In this last application, as regards the final results, it may boldly enter the lists with the best objectives, and it is hardly necessary to correct the focus.

Of course, the achromatic landscape lens, as a portrait lens, does not need the above-mentioned correction ; but, on the other hand, it gives far less rapidity, practically useless for photographing by daylight, and makes it necessary to use a powerful magnesium light, combined with daylight or alone. Every symmetrically constructed double objective, every aplanatic euriscope or rectilinear lens, has two such landscape lenses, one as front and the other as back lens. By unscrewing the front lens and stopping the back one down to *f*/40 to *f*/60, one obtains a brilliant objective portrait, giving definition up to the edge of plates of 60 × 70 cm. or more, presupposing the diameter to be about 3 inches smaller—that is, 2-inch lenses will do very well for 30 × 40 cm. plates.

I made most of my experiments with magnesium light in order to reduce the exposure to a minimum, and, if necessary, to be able to dispense with a studio ; and further, to find out how to obtain a soft, luminous illumination with artificial light.

Magnesium light produces great reflection in the camera, making it necessary to adopt special precautions in order to counteract this reflection and to obtain a negative free from fog. I attained my object by affixing a cubic projecting piece in front of the camera, which keeps off all the light not required for definition with the size of plate in use. A harmonious, richly and softly graduated illumination of the sitter, as if with daylight, depends on the right arrangement of the background with a number of reflectors. This is the way to arrange it. Place the sitter at such a distance from a dull, but not too light background, that its shadow may not interfere. If the sitter's right side is to be the light one, place a high light screen on that side at an obtuse angle to him, and close to the background. On the same side, at the sitter's side and crosswise in front of him, is placed a reflecting screen inclined towards him at an angle of 45 degrees, and 125 cm. high by 100 cm. broad. This screen is placed on legs 75 cm. high, can be twisted, and serves to illumine the deep shadows under the projecting parts of the face. If necessary, the effect of this screen can be increased by laying light paper on the floor near the sitter. On the left of the sitter, in this case the shady side, place crosswise at his side a three-fold reflector-stand, 1½ in. high and 1 m. broad. Incline both its lower reflecting screens at an angle of 45° towards the sitter, and put light paper on the floor. The uppermost reflecting screen may be turned on its axis at such an angle that the light is reflected on to the side hair, that its detail may come out sufficiently. Bright places above the sitter, and daylight falling direct from above, are to be avoided. If the sitting takes place by day in a studio, let as much daylight as possible enter on the shady side, in the case here supposed the left of the sitter, not fearing to make it too bright, for daylight, except it be bright sunlight, does not light up much owing to the brevity of the exposure. This problem is solved far more effectively by the reflecting screen on the shady side. In my opinion, a sitting with magnesium light by daylight is to be preferred to a sitting in a dark room, inasmuch as the flashlight in this case is less felt by the eye. Any exposure can be made with the reflectors arranged as described in a room of any desired degree of darkness, or in the evening, if a second and broader and higher reflecting screen is placed behind the threefold one, on the sitter's left. In this case it is necessary to avoid great light.

From this disposition of the background, improvised by me, it is possible, with a little mechanical skill, to make a hinged, moveable, adjustable system of backgrounds and reflectors in the form of a square open in front, which, being opened out, is immediately ready for use, and which, according to the angle of its reflecting surfaces, permits of the most various modes of illluminating the sitter.

For an exposure in the evening, or in a dark place, I employ a powerful petroleum lamp, with a large reflector, casting its light on the shady side of the sitter. I make him look at this lamp before and during the flash of the artificial light, that his eye may be accustomed to a bright light at the moment of the greatest display of light..

To obtain a sufficiently intense magnesium flashlight, I have made numerous experiments with all imaginable explosive mixtures. But even with the greatest quantities and the thinnest layer of powder over a large area—that is, with the most plentiful supply of oxygen and simultaneous ignition at several places at once—I could not obtain that intense momentary light which is absolutely necessary in such cases if they are to be carried out with an instantaneous shutter. For this reason I constructed a light-apparatus, consisting of five glass vessels, with globular reservoirs, holding each 3 grammes of magnesium, altogether 15 grammes, of pure, finely-sifted, dry magnesium powder, sufficient for two exposures. Under the reservoirs each glass body is provided with a slit blow opening, through which a very thin layer of the powder is blown into the flame, and burnt up quickly and completely. The bottom of each reservoir ends in a twice-turned glass tube. Otherwise the construction is very simple. At equal distances the bodies of the lamps are slid into brass clamps, which are placed on the long cross lath of a portable stand, that can be raised or lowered, so that it is easy to take them down for re-filling. On each of the glass bodies an oblong metal cup is placed, which is provided lengthwise with boxed slits, into which the fan-shaped blow parts fit, or rather outside, where they protrude a little. The cup, provided with channels for conducting the air in, is filled with asbestos or cotton wool, which is damped with a mixture of benzine and alcohol. To the lower tube-like end of the lamps are attached fork-pieces of indiarubber tubes of the same length. A sixth, and somewhat longer tube, branches off to the instantaneous shutter on the objective. All the tubes open into a large tube with the trumpet-shaped mouthpiece, through which, with the mouth, one can produce a far more energetic current of air of any desired duration than by means of an indiarubber ball. To prevent damping the powder with the breath, I insert in the chief tube a drying glass cylinder, loosely filled with cotton wool. Soft illumination is produced, as I said, only by a broad light. My apparatus, for example, when one blows, produces a highly powerful flame, focus broad, the effect of which is increased by a broad reflector behind it, which is tipped forwards a little. This broad light, in conjunction with the reflectors grouped round the sitter, produces a richly modulated, harmonious illumination. My experiments have shown me that magnesium lamps on the shady side, producing only unnatural effects, are a drawback.

The lighting apparatus for life-sized pictures must be about 2 to 2½ metres above the floor, and 2½ to 3 metres from the sitter. It must be placed on the same side and at the same range, as though it were daylight, that was to be used. According to the nature of the object, more front or side light may be used, the apparatus placed higher or lower. The latter must be so placed that the light does not fall into the lens, but proceeds from the side behind it.

As a proof that good results can be obtained with such a simple apparatus, which every photographer either has or can procure at very slight cost, let me quote the flattering opinions of the most eminent photographers of Berlin and Vienna. Some of my pictures being shown at a meeting of the Practical Photographers in the former city, Dr. Miethe and the most eminent members of the Society said that the achievements were astonishing and startling, especially when taking into account the exceedingly primitive means employed. Stress was laid on the fact that the execution and definition, particularly of my photographs taken with a spectacle lens, proved that the most excellent work can be done after my very primitive method.

At the request of Dr. Eder, I sent some specimen portraits to the Vienna Institute, which were added to the Exhibition there.

Being an amateur, anyone can freely imitate my method. I shall be pleased if the results achieved with it are satisfactory, and open up a new and profitable field to photography.

◆

A NEW NEGATIVE VARNISH.

THE *Photo-American* publishes the following recipe, which is attributed to Professor Wemys :—

Much experience with different kinds of varnishes, and many experiments, enable me to lay before the readers of the *Photo-American* a new varnish, which may not only be applied to the wet negative immediately after washing, but which also enables one to dry the negative by gentle heat. Not only does the process have the advantages of despatch and simplicity, but it produces a surface which may be readily prepared for retouching, giving a splendid tooth that will allow of any amount of pencil work.

The varnish is made as follows :—Dissolve 4 ounces of borax in 6 ounces of boiling water, and add enough bleached shellac to make the mixture of about the same consistency as ordinary negative varnish, which may be ascertained by pouring a few drops on a piece of glass and letting it cool. Then filter through muslin, and add a few drops of glycerine. Apply this varnish to your negative in the ordinary way, and, if desired, the plate can now be dried by gentle heat without injury.

When the film is sufficiently dry and hard, it may be prepared for the retoucher's pencil as follows :—Tie up a little fine emery in a piece of muslin, and with it pounce out the finest dust over the plate, and rub the film gently with the end of the finger. This, in a little while, will give the finest retouching surface imaginable.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, JUNE 23, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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BIRD'S-EYE VIEWS.

THERE is one class of landscape which the photographer, be he professional or amateur, is rather inclined to let alone, unless he has some very strong motive for turning his camera upon it. When we include the word amateur here, we do not mean the beginner—who, in his ignorance, will expose a plate upon anything on the earth, or above or below it, irrespective of light, common sense, and everything else—but the educated photographer, who is master of the instrument which he carries. The class of landscape to which we allude is the wide stretch of country or town which is viewed from the top of a hill or a high building—what in fact, in common parlance, is called "a bird's-eye view." In truth, most photographs of such views are disappointing. Distance no longer is induced to lend enchantment to a view on such security as a photographer can offer, for, as a rule, he can only promise an unsuccessful result. His photograph is not a picture, but an imperfect map, imperfect because the details upon which the beauty of a map depends are absent, and the thing has certainly no artistic claims which will make up for their loss. Yet it is possible to get something better than this barren result, if the worker will only be careful in his choice of subject, of day, and of methods of working.

With regard to subject, it often happens that the photographer, if he be a professional worker, has very little choice in the matter. He finds that there is a demand for a particular view, and he does his best to meet it. But he can surely choose a suitable day for securing his negative, and, unfortunately, in our climate this is not a very easy matter. A fine, sunshiny day is unsuitable, and a dull, grey day is as bad. In the first case everything on the face of an extensive landscape is equally illuminated, there is no relief by shade, half the prospect is usually lost in mist, and, if the ground be much heated, troubles due to refraction arise. And, in the second place, there is the same absence of relief, plus the blackness of every green thing, which is characteristic of photography in the absence of sunlight. The right opportunity for such work is one of those gorgeous summer days when the sky is intensely blue, and when fleecy banks of white vapour are constantly scudding across it, casting purple shadows over the landscape, with such diversity that one can actually pick and choose his method of lighting. Under such conditions it is a positive and exhilarating pleasure to photograph a chequered landscape—first with the foreground in shadow; then with the distant hills forming a dark background to the brilliantly lighted fields in front of it; once again with the mid-distance dark, and so on, with endless ringing of the changes upon the photographer's two bells—light and shade.

The same remarks will apply to photographs of the boundless sea. A picture of the open sea under a cloudless sky would be as uninteresting as a piece of blank paper; but if there be clouds in the sky above, to cast their shadows on the water below, cutting up the surface of the sea into a many-chequered pattern of dark and light patchwork, it is a different thing altogether. The photographer might take a lesson from a painting recently added to the South Kensington Collection, and bought under the Chantrey bequest. It is called "Britannia's Realm," and consists simply of a wide stretch of ocean such as we have just described—a panorama of blue sea, broken up by sky shadows and studded with many sails. Another very beautiful seascape, by Brett, hangs in the present Academy exhibition, and owes its charm to the variety of tones due to cleverly-introduced cloud shadows. Of course, the painter has in the resources of his pallette possibilities denied to the photographer, but we are at present referring to values not dependent upon colour.

Now, as to the best method of securing images of these vast estates of Nature by means of the photographic camera. It is practically impossible to photograph the whole of an extensive view as taken in by the eye, unless we use a panoramic contrivance which will sweep the entire horizon. A less effective plan is to point the camera to different sections of the view, and afterwards to join the prints obtained from the several negatives; but the seams are generally terribly apparent, and for this and other reasons the results are unsatisfactory, unless indeed a mere register, or map of houses or fields, is the only thing demanded of the photograph. A clever printer might possibly succeed in joining up such pictures so as to form an harmonious whole, and he might devise a means for adding clouds and giving some suggestion of atmosphere; but the work would be difficult and would hardly repay the cost. The average worker will prefer, if possible, to secure his view upon one negative and at one operation, and it is on this assumption that we are basing our remarks.

In these days of readily-obtained enlargements the mere size of a picture is an insignificant matter: but for extensive views we should not recommend the employment of a very small plate. In the first place, we want to include in our picture as much as possible; and, secondly, we find that to do the best work we must use a single lens of long focus. Such a lens will only take in a comparatively small portion of the view before us, and it is therefore best that we should endeavour to make up for this by providing sufficient area for its operation. Single lenses are not included as a rule in the modern photographer's outfit; but of late there has been a reaction in their favour, and many careful workers have recognised how valuable they are for certain classes of work. But everyone has a doublet lens of some form or other, and he has merely to use one combination and put the other in his pocket to obtain what he wants. This will, of course, necessitate a racking out of the camera to double its normal length—we mean double its length when used with the lens in its normal state. Most modern cameras are built with sufficient extension allowance to meet this want; but any instrument can be fitted with an extension cone in front, which will answer the same purpose. Let the operator, then, provide for his bird's-eye views a long-focus lens and a long-extension camera. Let him stop down his lens to the fullest extent, and give a long exposure. But, as we have already advised, let him choose a sunlit-by-cloud-shielded day for this class of work. The cloud shadows on a landscape, and especially on a hilly landscape, give it one of its chief charms. Such shadows travel so slowly over the land, casting one promontory in darkness while its neighbour is in full light, that the operator need not hurry to return the lens cap to its place. Let the work be carefully thought out with deliberation, and the result will be so pleasing to the operator that he will no longer shun a bird's-eye view as a thing which will not yield a satisfactory photograph.

MESSRS. HILLS & SAUNDERS.

MESSRS. HILLS & SAUNDERS, the well-known photographers of Eton, Harrow, &c., have just opened new and extensive London premises at Sloane Street, S.W., whither we repaired one day last week, in response to an invitation from the firm, to inspect the new art studios. On our arrival we were shown into a splendidly furnished and decorated reception room, and, while waiting until the studio was at liberty, our guide showed us some interesting pictures, among which were a number of portraits of members of the aristocracy, &c. He then conducted us, first, into an elaborately decorated and cosy dressing-room, from which we passed into the "studio," which is more than seventy feet long. We were informed that this fine room had originally been a concert-room. It was dark when we entered, the windows being covered by dark blue blinds, but, on touching a button, a number of incandescent electric lamps lit up, and revealed an old oak hall, hung round with many pictures, of which more hereafter. The polished floor is partly covered with handsome mats and skins, while at one end we saw a painted background with a chair in front, over which hung the now familiar bell-like structure, containing the electric arc-light as used so successfully by Van der Weyde and others.

This apparatus has been supplied by Messrs. Gwinne & Co., with whom, it will be remembered, is incorporated the Pilsen Electric Company. The reflector, with its contained lamp, can be placed in any position with regard to the sitter, and, used in conjunction with whitewashed screens, it gives very soft and pleasing results, as was satisfactorily proved by the specimens submitted to us.

Some hundreds of photographs on the walls of the studio form an unique collection, depicting life at our public schools, notably a complete series of portrait groups of the cricket elevens of Eton and Harrow every year since 1863. We were also shown a number of very fine figure studies, which had won for their producer many medals. We wish Messrs. Hills & Saunders every success in their new venture.

* * *

WE have received from Messrs. Arthur Schwarz & Co. samples of their Metol cartridge, which only require admixture with water to furnish an energetic developing fluid. The same firm sends us two other cartridges; one for toning and fixing gelatino-chloride paper, and the other for general fixing purposes. It is evident that a tourist photographer, provided with a few of these neat little packages, will be in a position to develop and print his pictures *en route* without being troubled with bottles or solutions.

"DODGES." *

BY C. O. GREGORY.

THE subject of "Dodges," which it is my privilege to bring before you this evening, is one that should be of great interest to the amateur photographer; in fact, it goes a long way to complete his photographic education. To the profession I presume it is impossible to mention anything under this head that is not in their everyday practice; but the beginner in the art regards anything outside the elementary instructions of procedure as "dodges"—at least, I do. That the best workers among us indulge in dodging is admitted. One will tell you he is obliged to dodge all his negatives; another that good negatives are the exception with him rather than the rule; or another that he has no good negatives, mostly failures; and so on. Of course, a good deal of this is due to modesty; but it leads one to the conclusion that the production of superior work is—as, of course, it must be—the result of careful manipulation at every stage of the process, and knowing the means by which to avoid or overcome defects. It is now my intention, with your permission, to refer to a few rough and ready dodges that, in my own limited practice, have been found useful; and I will also offer you a suggestion or two which I trust will be worthy of your consideration; but I would add that my remarks (coming, as they do, from rather a raw recruit) are intended chiefly for less advanced workers.

The most interesting part of dodging refers, no doubt, to work on the negative; but before we come to that I purpose mentioning a few other items, and will commence with development and the use of a brush. I first saw a brush used in this room, for the purpose, as I understood, of preventing air bells and keeping the developer in motion. I tried it for the latter purpose, and soon accustomed myself to use it in literally painting out under-exposed parts (after pouring off the developer), and by this method worked up detail in the weak parts without causing undue density in the high lights. With usual development, when a plate was any way under-exposed or the contrasts great, I was always liable to get the high lights developed right through to the back of the plate (when they begin to spread and cause halation) before sufficient detail was obtained in the shadows. On the other hand, with a brush, when I find the high lights progressing favourably I pour off the developer and work out all detail, then pour on the whole of developer again, rocking the dish until sufficient density is obtained, and stopping development when the high lights are quite through the plate and before they have time to spread. The negative I pass round for your inspection was produced in this way. The white garments of the cricketers and tent came up at once, and were fully out when the lower part of the plate was bare; the black coat in central figure was also bare glass without detail, but by pouring off developer except a small quantity, and tilting the tray so that the developer only covered the bottom part, with the brush I was enabled to get out all detail of grass and black coat, without losing detail in the high lights. With the ordinary mode of development I think the result would have been far different. I also pass round two other negatives exposed and developed with the idea that development with the brush will go a long way to prevent halation. In the first, the distance came up at once, but the near buildings were certainly under-exposed, being in heavy shadow. It took twenty minutes to get out detail, but the distant or central part was only a minute or so under the developer—irregularity being avoided by occasionally sweeping the wet brush over the whole of the plate. The other negative was an instantaneous exposure, treated in the same way; but you may observe that the edges of the trees are perfectly sharp, and the negative, with a little other dodging, gives a fair print.

Another advantage of the brush and local development is, that clouds can be saved in the negative if there are any, or, in other cases, it may be desirable to keep the sky thin, and work clouds on the back in the manner to be presently described; and I feel confident, after twelve months' trial, that the brush gives great power over the quality of the negative, and I mention it to you as a most useful dodge.

Before I leave development, I would also mention the use of the warm finger in more energetically bringing out particular parts. In lantern slides this is very useful, but it can easily be overdone. Gently move the second finger over the part you wish to bring out stronger. When the second finger gets cold, use the third finger on the place, and by the time the third is cold the second will be again warm enough to continue the operation, and so on until the desired effect is obtained.

Intensification is, I think, almost outside our subject, especially as the matter has been so ably dealt with on other occasions. I am tempted, however, to say my own opinion is that, if thin negatives are cases of vexation, intensification, unless performed with great judgment, is, nine times out of ten, quite as bad, but there is a dodge or two in connection with it worth mentioning. The first is—dry your negatives quickly, and in a strong light it gives (or prevents them losing) density; I fancy the latter. You will be surprised at the difference in a negative dried in a strong light, or even in the sun if the negative has previously passed through the alum bath, and one dried in the dark in a cold situation. The first will be of a rich brown colour, the other of a greyish tone and of less printing density. Another dodge is slight intensification by the clearing bath, but it must be a clearing bath containing iron. The iron immediately changes the colour of the film, darkens the high lights, and at the same time clears the shadows, and so gives a crispness not originally possessed by the negative. A weak solution of plain iron, or the usual iron developer, will also intensify by changing the colour of the film.

In some instances it becomes a necessity to reduce parts of a negative. A strong light through the branches of trees, a bright ray of light through a window or an archway, generally causes halation. In most of these cases it is possible to considerably modify the evil, or even entirely overcome it, by chemical or mechanical means.

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* A paper read at the North Middlesex Photographic Society.

I recommend methylated spirit (it must be neat, not spirit and water), and must be used after the negative is dry, by applying a little to the part to be treated until it softens (don't be in a hurry about it), then, with a piece of chamois leather, rub the part until some of its blackness comes off on the leather, changing the leather when it gets dirty, and continuing until the desired effect is obtained. I only recommend this treatment for small patches, say not exceeding the size of a sixpence. For larger surfaces the remedy is often worse than the disease, as the result often appears unpleasantly smeary. It is effective on faces when too dense, also in bringing detail out in the folds of a white dress; but, like all remedies of this description, it must be used with discretion. Another method I have tried—rubbing down with brick dust, and find it effective on thick films. The way to use it is to rub your fingers on a piece of Bath brick until the ribs on the skin are worn down, and the finger quite smooth; the finger will then have adhering to it sufficient of the fine dust to reduce density on the face, &c. This will not do for thin films.

It is sometimes desirable to use a quarter-plate in a half-plate dark slide, but it is a nuisance bothering with quarter-plate carriers in addition to being obliged to get a separate box of plates. Both of these troubles can be avoided by cutting a half-plate in half with one of the cheap glass-cutters, place one half in centre of dark slide, filling up the side spaces with cardboard the same thickness as plate. In this way two quarter-plates can be used back to back, or one quarter-plate and one half-plate.

The Printing Frame.—A quarter-plate picture can be vignetted into cabinet or half-plate size by using a half-plate printing frame with a piece of cardboard the same size, with an aperture cut out for the quarter-plate negative, covering the join with yellow or black paper, as in the example I show you. The same arrangement applies to larger sizes.

Plain and Fancy Borders.—At times you may wish to have a margin round a print; perhaps a plain one round a landscape, or a fancy one for a portrait. For that purpose a mask must be provided of opaque paper. Cutting out an oval, square, or any other shape desired, place the outer portion on the negative in its proper position, then the sensitised paper and print. By using a larger frame and filling up the space round the negative with cardboard, a much wider border can be obtained, and a plain white border gives, I think, a neat and bold appearance to a print. It may, on other occasions, be desirable to print a fancy border, and it will be necessary then to make a negative of the design required. (Marbled paper, or imitation morocco paper, will answer the purpose.) After printing with the plain border, the part already printed must be covered with the piece of opaque paper cut out of the mask. Slightly stick it in its place on the print, and print the border from the border negative provided for the purpose. There are several modifications of this style of double printing which will, no doubt, suggest themselves as occasion requires.

(*To be continued.*)

COMPENSATION IN DEVELOPMENT FOR VARIATIONS IN EXPOSURE.

BY A. COWAN.

ACCORDING to promise, I have brought to show you to-night the result of a few experiments on the question of "Compensation in Development for Variations in Exposure," on the lines suggested by Mr. Burton's paper. When the question was brought up at the last meeting, I ventured to say that, from my own experience, I did not think it was possible to get negatives giving identical prints, or so nearly similar, that an experienced photographer could not tell the difference between two negatives—one having the so-called correct exposure, and the other forty or eighty times as much—unless the range of tones was practically limited to, say, two tones or little more. In the examples I have developed, one plate may be considered to have had a normal exposure—viz., a series of light intensities varying from half a second to thirty-two seconds, each step being double that of the previous one, and in the others an over-exposure of thirty-two times—viz., the first having sixteen seconds, and the last of the seven 1,024 seconds.

I here show you the results, the negatives themselves, and also the curves of the densities as measured by the photometer, and I scarcely think anyone can imagine that the various negatives can by any possible means be considered identical. The first one (the normal exposure) was developed with—pyro, 1 grain; anhydrous sodium carbonate, 4 grains; and potassium bromide, $\frac{1}{2}$ grain; and the three over-exposed ones respectively by doubling the pyro and bromide each time, the last one having eight grains of pyro and eight grains of bromide to the ounce, the alkali in each case being kept constant. The time of development varied from six minutes in the case of the normally exposed plate to one hour and forty minutes in the case of the eight-grain pyro one.

I should explain here that what I tried to do was to make the lowest tint in the scale of each as nearly of the same density as I possibly could, leaving the higher ones to go on in their own way.

I notice that Mr. Burton in his article says his statement is not compatible at all with Messrs. Hurter and Driffield's, where they say the density ratios cannot be altered by development. Now, I think it should be clearly understood what they did say, which, if I understand them, is this. They first define what they consider to be a perfect negative as one in which "the opacities of the gradations are proportional to the light intensities," and, after many pages of mathematical reasoning and records of many experiments they say:—

"We have thus arrived at an answer to the question, Can negatives be produced such as we defined to be theoretically perfect?—and the answer is they *can* be produced, but only by so carefully adjusting the time to the intensity of the light that the exposures may fall between the period of correct representation."

I must say, from my own trials of Mr. Burton's method, I cannot upset this contention. I may say here that I sent to four members of this Society duplicate pieces of each of the plates here shown, and I hope we may be favoured with the results of their experiments in the same direction. All I can say, in conclusion, is that, at the present time, I am not able by Mr. Burton's method to upset the theory that correct exposure is the principal determining factor in the production of correctly graduated negatives. That abnormal exposures can be made by alteration in development to give certain pictorial results, I am perfectly open to admit; but, in a subject of this kind, that is not the question. But what we are talking about is, Can forty or eighty times the correct exposure be made to give identical results by modification in development? — *London and Provincial Photographic Association.*

"TENTATIVE" DEVELOPMENT.

BY W. K. BURTON.

I SEE that, in a recent issue of the *Photographic Times*, Professor Charles Ehrmann does me the honour to attribute to me the first application of the word "tentative" to development. I was not the first to use the word as above indicated, but I consider it a very suitable one, and I have certainly often used it. I remember having heard it first used in connection with development by my friend, Mr. W. B. Bolton, but I cannot say whether he first applied it or not, nor, indeed, is it of much consequence who was the first to use the expression. The actual practice that is indicated by the expression "tentative development" is, however, one of the very greatest importance, indeed, of as great importance as anything in photographic manipulation, and as the question of development can never be over-discussed, I propose to say a few words here on tentative development.

Tentative development is useful only when we are uncertain whether our plates have received the correct or "normal" exposure, or one that is unnecessarily long. I shall here take correct exposure to mean the shortest exposure that will give a perfect negative, or, to avoid the difficulty of defining a perfect negative, shall say the kind of negative that an experienced photographer wishes to get.

It will be seen that I speak of "unnecessarily long" exposure, not of over-exposure. The reason is that recent experiments have proved the possibility of compensating for exposures so enormously greater than "normal" that I consider every photographer, of even moderate experience, using plates that he is accustomed to, ought to be able to be certain that he has given an exposure that is long enough, and that is yet not so long but that a negative such as is desired can be got by due attention to development. The very definition that has been given of correct exposure implies that, in the case of under-exposure, no good results are to be looked for.

Tentative development may be described as any method of development in which we *keep feeling our way* from the beginning. The alkaline developer lends itself best to this kind of work.

If there is no question of any excessive exposure, it is sufficient to begin by adding only a fraction of the normal quantity of alkali. Thus, whether ammonia, a carbonate, or caustic potash or soda be used, there may be added to the developer, at the beginning, only one-quarter or one-fifth of the normal quantity. With this the image will come up very slowly, even if the exposure has been considerably more than the minimum necessary; if the exposure has been correct the image will take a very long time to make its appearance, and in this case the remainder of the alkali may be added a little at a time, or all at once, if the operator is confident, from the way in which the image has appeared under the weak developer, that exposure was normal.

The commonest mistake made in working in this way is to add the whole of the alkali prematurely, thus getting a thin, flat image. The image comes up so slowly, even if it has had an exposure considerably more than necessary, that a photographer without much experience is liable to jump to the conclusion that the exposure has been normal, and to pile on the alkali, with the result that development rushes on in a way nearly beyond control. To prevent the danger of this, it is my common custom to keep a large measuring glass handy, full of a solution of bromide of ammonium, or potassium, of about ten grains to the ounce. If the image appears to be rushing up in an alarming way, the plate is taken from the dish, is held over the sink, and is liberally flooded with the bromide solution, which is kept floating over the surface for half a minute or so, to allow it to penetrate the film. This will stop development completely for the time being, but, if the plate be drained, and be returned to the developing dish, density will come up slowly, but detail will scarcely be increased at all. It may be necessary to repeat the flooding process two or three times.

Some years ago Mr. B. J. Edwards introduced a modified form of tentative development that is useful if there is no fear that exposure has been much longer than is necessary. It has the advantage that, if a number of plates are to be developed, less time is taken than by the method just described. A normal developer is applied to the plate at first. If exposure has been normal, development is completed in the usual way. If it has been longer than necessary, the image comes up very quickly and the plate is conveyed, just a little before all detail is visible, to a second dish containing a density-making developer. In fact, if I remember rightly, Mr. Edwards called this second developer an intensifier. It is merely a developer somewhat not over-strong in alkali, very strong in pyro, and with several grains of bromide of ammonium or potassium added to each ounce. In this density comes slowly up, but detail increases very little. If a large number of plates are being developed, there should be two or three dishes filled with the "intensifying developer," in which case the development in the normal developer may proceed, whilst one or more plates are gaining density in the intensifying developer.

(*To be continued.*)

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WE recently tested a sample of "Climax" plates made by Messrs. John Griffin & Sons. We found them excellent for landscape and portraiture, though they are scarcely quick enough for hand-camera work.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

11,179. SAMUEL DICKINSON WILLIAMS, Moorlinch House, Clytha Park, Newport, Monmouthshire, "Improvements in Magazine Cameras."—*June 7th*, 1893.

11,210. SAMUEL HENRY BRITTAIN and GRIFFITH DAVID HUGHES, 263, Balsall Heath Road, Birmingham, "Improvements in Photographic Cameras."—*June 8th*, 1893.

11,212. JOHN FEATHERSTONEHAUGH PARSONS, Bristol Bank Buildings, Bristol, "Improvements in Photographic Cameras."—*June 8th*, 1893

11,303. HENRY JAMES SPRATT, ALFRED SIDNEY SPRATT, and GEORGE AEBERT SPRATT, Tudor Works, Tudor Road, Mare Street, Hackney, London, "Improvements in the Construction of Photographic and other Folding Tripod Stands."—*June 9th*, 1893.

11,353. CHARLES PECZENIK, 22, Glasshouse Street, Regent Street, London, "Improvements in or relating to Photographic Cameras.'—*June 9th*, 1893.

PROCEEDINGS OF SOCIETIES.

THE PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

Technical Meeting, June 27th.—A demonstration of "Carbon Printing," by Mr. W. E. DEBENHAM.

A Congress of the Photographic Society of Great Britain and Affiliated Societies will be held at the time of the Exhibition of the Photographic Society.

The Congress will be opened on Tuesday, October 10th, with an evening meeting at the Gallery, Pall Mall, when the President will deliver his annual address and present the medals awarded in connection with the exhibition.

On October 11th, at 3 and 8 p.m., and October 12th at 3 p.m., there will be a meeting in the Theatre of the Society of Arts for the reading and discussion of papers, and on October 12th, at 8 p.m., there will be a special lantern display in the Gallery at Pall Mall.

Further particulars will be duly announced.

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.
Synopsis of Proceedings.

MONDAY, July 3rd (no excursion).—Opening of Convention and reception by the Right Worshipful the Mayor of Plymouth (W. Law, Esq.) at the Art Gallery and Lecture Hall of the Athenæum, 6.30 p.m.; presidential address, 7.30 p.m.; optical lantern, 9 p.m.

Tuesday, July 4th.—Steamer excursion to the Yealm and the River Tamar; Tavistock.

Wednesday, July 5th (no excursion).—General meeting, 10 a.m.; meeting of General Committee, 11 a.m.; Convention group at the Guildhall Square, 12 a.m. Papers—"Recent Developers," by E. J. Wall; "Lantern Slide-making," by Ch. L. Mitchell, M.D.; "Artistic Expression with the Hand-camera," by Mr. J. Guardia; "Multiple Films," by Mr. S. Herbert Fry; 2 to 5.30 p.m. Reception at the Guildhall, Devonport, by the Worshipful the Mayor of Devonport (W. Waycott, Esq.), 7 p.m.; optical lantern, 8 p.m. Papers—"Some Slides from the Marine Biological Laboratory," by Mr. J. T. Cunningham, M.A.; "The Special Properties of the Zeiss Anastigmatic Lenses," by Dr. Paul Rudolph, read by Mr. John Stuart; "Photography in Relation to Medical Record and Demonstration," by Mr. A. Pringle; 8.30 to 10.30 p.m.

The morning and afternoon meetings will be held at the Western Law Court.

The reception and papers in the evening will take place at the Guildhall, Devonport.

Thursday, July 6th.—Excursion to Launceston (leader Mr. R. Hansford Worth), leaving Millbay at 7.55 a.m.; excursion to Totnes and down the Dart (leader, Mr. G. Barnston), leaving Millbay at 9.10 a.m.; excursion to Looe and the Cheeswring (leader, Mr. J. S. Hawker), leaving Plymouth by steamer about 8.45. Papers—"Some Points in Connection with Development," by Mr. C. H. Bothamley; "On the Power of Compensating in Development for Variation in Exposure," by Prof. W. K. Burton; "Latitude in Exposure and Speed of Plates," by Dr. F. Hurter; "Our Pictorial Failures," by the Rev. F. C. Lambert, M.A.; 8 to 10.30 p.m.

The papers will be read at the Western Law Courts.

Friday, July 7th.—Excursion to Lydford (leader, Mr. R. Burnard), leaving Millbay, North Road, or Mutley at 7.55 a.m.; excursion to Bickleigh Vale (leader, Mr. Crook or Mr. Moore), leaving Plymouth at 8.25 or 11.20; excursion to Dockyard and Keyham, Cattewater (leader, Mr. Tweedy). Dinner and smoking concert, Western Law Court, 6.30 p.m.

Saturday, July 8th.—Council meeting, 9.30 a.m. Excursion to Princetown (leader, Mr. Burnard), leaving Millbay, North Road, or Mutley at 8.45 a.m.; excursion to Ivybridge, leaving Plymouth at 10.45 a.m.; excursion to Virtuous Lady Mines (leader, Mr. H. Alger), leaving Millbay at 11.20 a.m.

After the 27th inst., all communications should be addressed to the Hon. Sec., Photographic Convention, The Art Gallery, Athenæum Buildings, Plymouth.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.
June 15th.—Mr. A. HADDON in the Chair.

IN consideration of July 6th being the date for the Royal marriage, and of the Convention at Plymouth being held at that time, it was decided to hold no meeting on that date.

Mr. A. COWAN read a paper on "Compensation in Development for Variations in Exposures" (see page 395).

Mr. W. E. DEBENHAM said that the quotation which Mr. Cowan had given from Messrs. Hurter and Driffield was not that which Mr. Burton had challenged. What Mr. Burton called in question was the statement that the ratio of gradation could not be altered by development. The illustration by which Mr. Burton had supported his proposition was a very useful lesson. The negative which had received forty times a sufficient exposure, yielded a print which looked more like under-exposure than the other, and probably, if the principles adopted had not been carried quite so far, the exposure would have appeared equally sufficient in the two cases. With regard to correcting over-exposure discovered during development, he had found the method incidentally described by Mr. W. B. Bolton, when editor of the *British Journal of Photography*, in an article on reproducing negatives, the most practically successful. The method consisted in keeping a solution of bromide at hand and immersing the plate in it as soon as detail was out and over-exposure was recognised. After a minute or two of this treatment the plate is returned to the developer, which now adds density.

Mr. J. HOWSON said that Mr. Burton's statement was, that the ratio of density could be altered by development. He agreed with Mr. Debenham that the quotation used by Mr. Cowan was not apposite to the question.

Mr. H. FRY said that of the two photographs given by Mr. Burton, that having the shorter exposure was to be preferred. In the other case the scale of gradation had been shortened.

Mr. EVERITT said that the two negatives which Mr. Burton used did not give identical prints, and he did not believe that two negatives could be produced in that way, which a photographer could not distinguish.

Mr. J. S. TEAPE had followed Mr. Burton's directions, and taken two negatives, which he produced, one with forty times the exposure of the other. He thought them very similar, and that the prints from them could scarcely be distinguished. The method of correcting over-exposure described by Mr. Debenham was one which he had used and found the most practical.

Mr. COWAN referred to an article by Mr. Burton on "Tentative Development" (see p. 396), which he thought much more valuable than the one they had been discussing. Mr. Teape's experiment with a landscape he could not consider so satisfactory as one made with a sensitometer, where the exposed spaces were large enough to be strictly compared. The range of correct gradation was not long, and it was useless to speak of exposures outside that range.

The CHAIRMAN said it was clear that many more experiments would have to be made before anything satisfactory could be arrived at with respect to the disputed point of altering the ratio of density.

BRIXTON AND CLAPHAM CAMERA CLUB.

June 6th, 1893.—Mr. W. H. HARRISON in the Chair.

MR. FRY gave a lecture on "The Sandell Plate." In describing the properties of the plates, he stated that they were made in two brands—the General with two films and the Especial with three. Each film was of a different rapidity, and possessed different physical and chemical characteristics, which were not due to the thickness of the film or the extra amount of silver. The multiple film combined the opposite characteristics of the lantern plate and the snap-shot plate. The chief characteristics claimed for the plates are (1) advantages in hand-camera work; (2) great advantages in interior work; (3) they are a practical cure for halation; (4) they enable the worker to get better pictorial effect—*i.e.*, they are a better tool in the hands of the photographer; and (5) they are practically exposure-proof. There is no difference in the rapidity of the two plates, the rapidity being in both cases that of an instantaneous plate, the second film being five to eight times slower than the top one, and the third five to eight times slower than the second. For hand-camera work there is no advantage in using the triple over the double coated plate. In an ordinary rapid plate, the shadows block up in development; but, in the Sandell plate, the image is perfectly clear, and the lower film absorbs the light which, in the ordinary plate, is reflected by the back surface of the glass. For interior work they are superior to any ordinary plate. The image is formed on the three films, and, although portions may be reversed on the upper films, such reversal does not affect the printing qualities of the negative. Halation is almost entirely absent, and the details in the high lights perfectly clear. Another feature is, that the greater the exposure, the rounder the image. For a normal exposure—that is, the correct exposure for the top film—development should proceed in the ordinary way; but for an abnormal exposure, development should be tentative. Seek to obtain density on the lower films, and then get detail on the upper film. A strong fixing-bath should be used. On no account should the film be stripped.

At the conclusion of the lecture, questions were asked by Messrs. Butler, Kent, Dockree, Coade, Valentine, Shenton, Thomas, Harrison, and Conolly (visitor), and satisfactorily answered by Mr. Fry, to whom a vote of thanks was accorded for his exceedingly interesting lecture.

Next meeting, June 20th.—"Photography by Artificial Light."

HACKNEY PHOTOGRAPHIC SOCIETY.

Meeting, June 13th.—The PRESIDENT in the Chair.

MR. HUDSON showed negatives developed with his modification of pyro-soda.

Mr. BECKETT showed three negatives, each having had a different exposure varying from three to nine seconds, the density in each being equal.

Mr. S. J. BECKETT showed and explained the Ilford exposure meter.

Mr. BARNES asked what was the best developer for Eastman's films.

Mr. SODEAU preferred amidol.

Mr. SALMON showed a home-made camera, which could be used in the hand.

The HON. SEC. showed the "Uno" hand-camera, a cheap article capable of holding twelve plates. He hoped to try the same, and report on at next meeting.

Mr. HOUGHTON then read a paper on "Advice to Beginners," and recommended half-plate camera, with plenty of extension, swing back and front, and rigid tripod with large head. Two lenses, one of 8 in. focus, and one wide-angle.

Mr. GREEN asked if frilling occurred if developer was too strong.

Mr. DEAN recommended the use of alum bath.

Mr. RODER thought pyro-developed negatives required clearing bath.

The HON. SEC. recommended a square camera with the focussing done from the back, as otherwise, when using a short focus lens, the baseboard would cut off part of view.

Mr. GOSLING thought beginners should not commence with a hand-camera.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

Ordinary Meeting at Jubilee House, Hornsey Road, June 12th, 1893.

A QUESTION was asked as to the best way of copying a daguerreotype, it being very difficult to avoid reflection. One member recommended that it should be done by artificial light, by using two lamps, standing them at the sides some distance away, so that the light falls upon each side of the picture. Copying could often be done this way which would be quite impossible by daylight.—Mr. STEUART suggested that the method adopted in photographing silver plate might be successful—viz., to form an artificial dew on the surface, which would prevent the reflection from the bright surface of the plate.

The paper was one by Mr. C. O. GREGORY on "Dodges' (see page 394). He covered a very wide field, giving hints on every conceivable topic, such as exposure, for which he constructed, out of a small weight and piece of string, a second metre; developing; dodging by means of a brush; intensification dodges by matt varnish, tissue paper, colours, pencils, &c.; reduction by rubbing with spirit; printing;

vignetting; printing-in skies, &c., &c. The paper was full of matter, and the simplicity of his methods caused a good deal of amusement.

Six new members were nominated.

PUTNEY PHOTOGRAPHIC SOCIETY.

THIS Society's outing, on the 10th June, to Burnham Beeches, was well attended, and was favoured with very fine weather. Under the able leadership of the hon. treasurer, Mr. Wm. Martin, jun., the place was explored, but by no means photographically exhausted. An excellent meal was served on the lawn at Macro's Cottage.

The next outing will take place on Saturday, the 24th June, to Leatherhead, Dorking, and Shere, returning from Guildford on Sunday evening; leader, Mr. A. E. Smith.

ASHTON-UNDER-LYNE PHOTOGRAPHIC SOCIETY.

Rambles for June.—17th.—To Hebden Bridge, for Hardcastle Crags. Leader: Mr. Joseph Hutchinson. Train from Guide Bridge, 12.39 p.m.; from Ashton O.R., 12.44 p.m. or 12.49 p.m. Fare from Ashton to Oldham, 7d. return; from Oldham to Hebden Bridge, 1s. 6d. 24th.—To Bakewell, for Monsal Dale. Leader: Mr. J. T. Lees. Train from Ashton O.R., 1.40 p.m. Fare, 2s. each.

"*Hand Camera and Lantern Review*" *National Lantern Slide Competition.*—Conditions:—(1) The negative or lantern slide may be on any brand of plates. (2) Each society must enter six sets of six slides, *one set one member*, not more nor less. (3) No slide must have obtained a prize in any of the above paper's competitions. For other conditions see paper at the rooms.

The Committee hope a large number of members will compete for places in the Society's six sets.

Each member will be at liberty to send one or two sets of six slides each to the Secretary, at the rooms, not later than August 28th.

The Secretary will be in attendance at the rooms for the purpose of trying members' slides with the lantern on Wednesday evenings, August 2nd, 9th, and 16th, from eight to ten o'clock.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Ordinary Meeting of the Society held in the Large Room, Colonnade Hotel, May 30th.—Mr. MOUSLEY in the Chair.

ABOUT forty-five members present.

Mr. HENDREN gave his paper on "Christian Architecture in England," which was illustrated by sketches and diagrams on the blackboard. Mr. Hendren traced the evolution of architecture from the early Grecian times through successive stages to the Norman, where he paused, intending to resume at an early date. A number of very fine photographs by the lecturer, which were shown in illustration of his remarks, were much appreciated. The audience found this lecture, dealing as it did with a vast subject, very instructive and entertaining.

Ordinary Meeting of the Society held in the Large Room, Colonnade Hotel, June 6th.—Mr. W. JONES in the Chair.

ABOUT fifty members present.

Mr. W. J. BELTON, representing the Paget Prize Plate Company, gave a demonstration of the firm's printing-out opals and lantern plates. The sensitive film is very similar to the familiar gelatino-chloride paper, and readily tones in the baths commonly in use with that class of paper. Mr. Belton allowed members to tone some opals and lantern plates already exposed, and the results, both in the combined and separate toning and fixing baths, were most beautiful; any shade of colour, from warm sepia-brown to rich purple, being easily obtained; this demonstrates the simplicity of the process. A special printing frame is not absolutely necessary, as cardboard carriers can be used in an ordinary frame, but a very handy frame is made by the firm. The slides toned during the evening were passed through the lantern and very much admired, as were both the finished opals and lantern slides passed round. A very hearty vote of thanks was accorded to Mr. Belton and the Paget Company.

LEICESTER AND LEICESTERSHIRE PHOTOGRAPHIC SOCIETY.

THE first outdoor excursion of this Society took place on the 9th to Dovedale. The difficulty was not so much what to take as what to avoid, so many magnificent pictures presented themselves; and drafting off in twos and threes the excursionists wandered about in a paradise of pictures. Leaving the Dale at 4.30, the party drove back to Ashbourne, where a cold collation was done ample justice to. Altogether about seventy-two plates were exposed, and it is confidently expected that they will yield some of the out-door prize pictures, for which the President has offered silver and bronze medals.

MANCHESTER AMATEUR PHOTOGRAPHIC SOCIETY.

RAMBLES.—Gawsworth and Marton, Saturday, June 17th. Leader, Mr. Fleming, 10, Cannon Street, City. Train, London Road (L. & N.W.), 1 p.m. for Macclesfield; fare, 1s. 6d. By carriages, Macclesfield to Gawsworth.—Arley and Great Budworth, Wednesday, June 21st. Leader, Mr. J. Davenport, 6, John Dalton Street, City.—Chester, Saturday, June 24th, Leader, Mr. J. G. Jones, 120, Sewerby Street, Moss Side, Train, Exchange Station, 1.5 p.m.—Healey Dell, Saturday, July 1st. Leader, Mr. E. Ashman, 5, Blue Boar Court, Market Place, City. Train, Victoria No. 5, 1 p.m.—Monsal Dale and Ashford, Saturday, July 8th. Leader, Mr. J. T. Lees, Hope Street, Dukinfield.

SHEFFIELD PHOTOGRAPHIC SOCIETY.

THE ordinary monthly meeting of the above Society was held at the Masonic Hall, Surrey Street, Tuesday evening, June 6th, Mr. B. J. TAYLOR in the Chair, when, after the usual routine business, the Photographic Exchange was effected, thirteen members taking part.

The SECRETARY read a letter received from the Secretary of the Photographic Convention of the United Kingdom, asking whether it was the intention of the Society to send delegates to Plymouth, when it was decided not to do so; after which Mr. SPARHAM CAMP gave a practical demonstration—subject, "Printing on Rough Surface Papers"—showing the process of sizing, sensitising, and fixing ordinary drawing paper to produce a nice soft picture, which was fully appreciated by the members present.

Several photographic novelties were exhibited. After the usual vote of thanks, the meeting terminated.

NORTHERN PHOTOGRAPHIC AND SCIENTIFIC ASSOCIATION.

Excursions, &c.—July 1st, South Kensington Museum; July 8th, White Webbs Park and Enfield; July 15th, Battersea Park; July 22nd, Richmond; July 29th, Rickmansworth; August 7th, Burnham Beeches and Stoke Pogis; August 12th, Chigwell; August 19th, St. Albans; August 26th, Hatfield;

September 2nd, Chingford; September 9th, Totteridge; September 16th, Hadley Wood; September 23rd, Welwyn; September 30th, Hyde Park.

CORRESPONDENCE.

CENTRAL PHOTOGRAPHIC CLUB COMPANY.

Sir,—The delay in issuing the prospectus of the proposed company has arisen in consequence of the time occupied in the further negotiations which have taken place between the executive, the landlords of the premises proposed to be taken, and their solicitors, with reference to the form in which the landlords are willing to lease the property. Most of the points at issue having been disposed of, a provisional prospectus is now being issued.

We wish to take this opportunity of apologising to the numerous applicants for prospectuses for the apparent neglect in issuing the same.

W. Fenton-Jones, } *Hon. Secs.*
Chas. H. Oakden, }

CELLULOID FOCUSSING SCREENS.

Sir,—Referring to two recent occasions upon which you noticed items of photographic ware introduced by us—first, celluloid focussing screens—our illustrious friend, Mr. J. E. Fitch, claims to be the prior inventor of this important application. In its original form, that of thin film about the thickness of a playing card, the application suggested itself to nine out of every ten persons, including ourselves, at first sight, but for any except the smallest focussing screens this film was too thin. More than a year ago, therefore, we obtained, after the customary "how not to do it" obstructions were surmounted, a suitable film of the thickness of 15 oz. glass. This film finely matted, as it is now, is perfection for the purpose. Next, you observe, in alluding to our aluminium trays, that they "resist all agents *likely to* come into contact with them." That possibility would largely depend upon the chemical education or experience of the operator. If, for instance, hydrochloric acid, one of the common objects of the dark-room, were introduced into an aluminium tray, one minute would suffice for the solution of the bottom of that tray. Aluminium trays are good for many operations, but not for everything.

Hinton & Co.

COLOUR PHOTOGRAPHY.

Sir,—I have read, in the last number of the Photographic News, Mr. Ives's reply to my letter. I still adhere to my former statements, and I shall always know how (in no hostile spirit) to call things by their right names whenever the occasion may arise. In the meantime, I have no desire to bandy words with one who seems to have no other object than to promote his own ends.

The letter which I wrote to Mr. Ives, and which he publishes in the Photographic News, proves conclusively that I am ready to recognise talent, wherever it is to be found, independently of any question of nationality. But this letter of Mr. Ives's has really nothing to do with the Lippmann discovery; it simply wanders from the real matter at issue only to return to the Ives question. I must decline to pursue the subject further, the public being now sufficiently enlightened and in possession of all the facts of the case.

Léon Vidal.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Scottie.—A little handbook on the ferrotype process is, we believe, published by Mr. Fallowfield, of Charing Cross Road. Originally a wet (bath) process, it has recently become possible to work it with dry plates, which are supplied for the purpose.

C. W.—Your specimen of retouching is a very good one indeed, and it proves that you have profited greatly by Mr. Hubert's instruction.

T. D.—Excess of salt would not have the effect stated. The silver would be precipitated, and the liquid above it would become clear with a strong saline taste. We should advise you to draw off a sample of the mixture and add hydrochloric acid. If this has the required effect, the bulk of the liquid can be similarly treated.

J. M. (Keswick).—We should be inclined to attribute the failure to impure sulphite; try again with a better sample.

Sixty.—The yellow stain is undoubtedly due to iron, and sulphuric, or by preference acetic, acid will remove it.

H. G. T.—Use crystallised acetate. Make up a strong stock solution of the strength named in your letter, and from this make a dilute solution as you may require.

Rameses II.—Your question is sufficiently answered in an article which appears in our present issue.

J. K. R.—The subject is included in the catalogue of lantern slides published by Mr. York, of Notting Hill.

A. C.—The difficulty will disappear if you reserve the alum bath until after the negative is fixed and washed. If the gelatine is unusually soft, wash for about five minutes only under the rose tap, and then transfer at once to the alum bath.

Phonos.—A hot-water tin of pyramidal shape is what we should recommend for drying collodion-emulsion lantern plates. The plates are placed against the sloping sides, and by the time the fourth has been coated the first is dry, and can be placed in a grooved storage box.

Forty-one.—Prussian blue, lake, sepia, and burnt sienna will give you all the range of tones which you may require.

W. B. B.—You can ignite a number of magnesium cartridges by means of a magnetic exploder, or, with more trouble and cost, by a Grove, or Bunsen battery. In the first case, you must use special fuzes (Messrs. Harvey & Peak, of Charing Cross Road, supply these), and in the second, the circuit is interrupted by a fine platinum wire which becomes white-hot and fires the charge. Such elaborate machinery is really unnecessary, for far more simple means of firing magnesium lamps simultaneously are provided by the photographic dealers.

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"Burnet's Essays," which a few years ago were republished in facsimile by photographic process, and by the enterprise of Dr. E. Wilson, of New York, are now out of print. Those, therefore, who possess copies of this valuable work will do well to take care of them, for they cannot be replaced.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1817. JUNE 30, 1893.

NOTES.

THE full programme of the Photographic Convention, which is to meet at Plymouth on Monday next, has been issued in the form of a small pamphlet, which can be obtained by members who intend to be present. It gives details of the proposed excursions, an account of places of interest in and near Plymouth, besides general information as to the purposes of the Convention, dark-room, and hotel accommodation. We trust that the Convention will have more sunshine than has been allotted to it on past occasions.

THE Catalogue of the Exhibition of the Photographic Society of Japan is the daintiest little volume of the kind which we have yet seen. It is printed on that wonderful *crêpe* paper which Japan only knows how to produce, and each page is decorated with some little polychromatic design which only a Japanese artist can execute. The designer and printer of this unique catalogue is T. Hasegawa, of Tokyo.

IN another column we print at length an account of this exhibition at Japan, and it is extremely interesting to note the Japanese opinions expressed on pictures familiar to our readers. It was a happy idea of Professor Burton's to organise such an exhibition. Would it not be a good thing to pay back the compliment by arranging an exhibition of Japanese photographs in London? The Camera Club might, perhaps, consider the advisability of doing so.

THE Eastman Kodak Company, of Rochester, N.Y., have secured, at the Chicago World's Fair, the concession of a dark room for their customers. Users of kodaks have the privilege of using this room, where competent attendants are found to set right any difficulties which may occur. Here kodaks can be reloaded, any necessary repairs can be made, and fresh instruments obtained, on loan, if necessary. Kodaks are being much used at the World's Fair, and this dark-room accommodation is, therefore, almost a matter of necessity.

AT a recent meeting of the British Astronomical Association, Mr. A. C. Ranyard stated that the stereoscope had been tried on photographs of the corona. Although only one view was used, yet when two images were placed side by side an apparent stereoscopic effect was produced. Similarly, if we took photographs of stars we also had a stereoscopic effect, for the eye judged distance by brightness as well as by the different views obtained by the two eyes, and that, therefore, much reliance could not be placed upon it.

IN an interesting paper read before the same Association, Mr. N. E. Green showed how best to secure accuracy in astronomical drawing and sketching, and gave it as his opinion that for astronomical purposes drawings were far better than photographs. He said that when first he saw Dr. De la Rue's lunar photographs he gave up a series of drawings which he had been making, thinking that they would soon altogether supplant them; but even now, taking a crater from one of the best photographs, those of the Lick Observatory, a good artist's drawing would leave it far and away behind. There might, and probably would, come a time when the image, as seen with a 500 or a 1,000 eyepiece, would be photographed direct, and then, perhaps, photographs would take the lead. A good plan to secure accurate drawings was to make one from a photograph, and then fill in the details at the telescope, taking care that the object was depicted under the same conditions of presentation and illumination.

THE following note on speed testing appears in Messrs. Cadett & Neall's smart little paper, *Dry Plates*:—"In accordance with the promise made in the last number of our magazine, we have made a series of experiments to determine the alteration in speed due to using our developing formulæ instead of the standard formula for speed testing. The result is that the speed numbers should be multiplied by TWO with our developer at 65° F. It may be asked why we do not give speed numbers with our own developer. This would not leave our numbers comparable with those of other makers using the Hurter and Driffield system. We therefore use the formula up to the present used by two makers for this testing purpose."

The conversazione of the Society of Arts takes place this evening at the Imperial Institute, South Kensington. Promenade concerts will be given by the band of the Scots Guards in the West Gardens, and by the band of the Royal Artillery in the Indian Pavilion. The principal galleries of the Imperial Institute will be open, and other attractions will be provided for the entertainment of the guests.

The Society of Arts' Silver Medal has, we learn, been awarded to Thomas R. Dallmeyer for his paper on "Tele-photography," and to H. Van der Weyde for his paper on "The Pictorial Modification of Photographic Perspective by the Use of the Photo-Corrector or Visual Lenses in Portraiture and Landscape."

As will be seen from our Correspondence column, the North Middlesex Society have arranged a series of classes for technical instruction in photography, which are available not only to members of the Society, but are free to the public. We believe that this is the only Society which has thus thrown its doors open to the passer-by, and we trust that that individual will appreciate the boon.

Photographers have of late had "art" so persistently flung at their heads, that they will soon begin to hate the sound of the word. One art critic, quoting the words of the promoters of the Dudley Gallery Photographic Exhibition, that it (*i.e.*, the Exhibition) will help to remove the misconceptions and unjust prejudices which exist as to the power of photography to make artistic representations, patronisingly remarks that "many of these misconceptions have been caused by the photographer himself, and are the results of his frequent failure to appreciate the elementary principles of pictorial practice." Really, to read these solemn utterances, and others to the same effect, of the self-constituted critics of photography, one would think there had never been a photographic exhibition, and that the image photographic seldom rose above the ordinary show-case specimens. Surely the superior persons who write thus can never have seen the productions of the best men. The writer we have quoted winds up by observing that, before the Dudley Gallery promoters "begin to educate the public, they will have to teach the photographers." To judge from the quantity of art instruction which has been flowing without cessation for so long, there ought not to be any photographers left to teach, for everyone has, apparently, been teaching everybody else. Perhaps this is why, as the old farmer said of the effects of claret, we don't seem to get "any forrader."

Photographers are, as a rule, highly favoured individuals. Privileges are accorded them which humbler folk may sigh for in vain. The only thing which fights against them is officialism in conjunction with royalty. Royalty does not mind, but officialism does. Thus, at the meet of the Coaching Club in Hyde Park, a photographer who had taken up a position without any objection being made by the police was hustled away directly the Duke of York and the Princess May appeared. Of course, the object which had drawn him thither was defeated.

We remember an instance, however, where this excessive zeal on the part of the police was defeated. It was at Hastings, on some public occasion in which the Prince and Princess of Wales were the central figures. During the procession through the streets the police essayed to remove a photographer who had gained a point of 'vantage for the express purpose of photographing the Royal carriage and its occupants. It so happened that the Prince of Wales saw the altercation, and guessing its cause, not only gave orders for the photographer to remain, but caused the carriage to stop for a few seconds, so that the picture might be taken. The act was typical of the good nature of the Prince, and also of the liking which he, in common with other members of the Royal family, has towards photography.

But, perhaps, one of the greatest privileges ever accorded to a photographer was that chronicled the other day by the New Zealand papers. Bishops, apparently, are more adventurous at the Antipodes than they are here, and Bishop Julius was actually hoisted in a basket to lay the last stone of the spire of Christ Church Cathedral. Three-fourths of the way up the basket suddenly stopped. The bishop told the workman he was not afraid, but for all that his countenance was considerably perturbed, and immensely relieved was he when the basket went on again, and he reached the top in safety. We are not told what he said when, on reaching the earth again, he was informed that his pang of consternation was caused by an amateur photographer who, anxious to "snap a picture of a bishop going heavenwards," had arranged with the man at the gear to stop the hoisting machinery!

THE USE AND ABUSE OF BROMIDES.

BY A POSTULANT.

(*Concluded from page* 389.)

NEXT I took the second celluloid plate which I may call Y, and cut it lengthways into two portions, Y A and Y B. The developer I used for this was that employed by Mr. Ewing, and referred to in the second paragraph of this paper. The strength of pyro was one grain to the ounce of developer, and the initial strength of the alkali was three minims to six ounces of developer. No image appeared in five minutes: nor was there any trace of reduction after the addition of three more minims of alkali and the lapse of another five minutes. Six minims of alkali were then added, and then the image showed up faintly in sections 5 and 4 of each of the two slips of celluloid. There was scarcely any distinction between these two sections, but as the development proceeded, the other sections came up gradually, the difference between them being faint, though appreciable. The development of sections 5 and 4 was completed at about the same time, and these were cut off from Y A and placed in the fixing bath. A little later Y A 3 was fully developed, cut off, and allowed to fix out. Y A 2 and 1 required the addition of fresh alkali to develop thoroughly, and the development of the two sections was completed at about the same time. Y B was not touched from first to last, and it was only when its section 1 was thoroughly developed that the whole slip was allowed to fix out. On removal from the fixing bath the characteristics observed were: (1) a faint yellowing of the film; (2) a slight veiling of the shadows of sections Y B 5 and 4; (3) the distinction between sections 1 and 2 was well marked, that between sections 2 and 3 less so, and that between sections 3 and 4 still less so; the difference between 4 and 5 was merely appreciable; (4) in Y A there was scarcely any difference between the sections cut out and fixed separately.

Finally, the third celluloid film, Z, was treated exactly as the others had been, the only change being the addition to the developer (the one recommended by Mr. Ewing and employed for film Y) of two grains of bromide of potassium to each ounce of developer. Development was very slow, and it was not till the alkali had been frequently added that the image appeared. First came section 5, then shortly after 4, next, a little later, 3, and after long intervals 2 and 1. The last three required additions of alkali before they could be completed. On fixing out it was observed: (1) that the staining was the same as in Y; (2) that there was slightly less veil in Z B 5 and 4 than in Y B 5 and 4; and (3) that the difference between the sections was well marked, the gradation of tones ranging from delicate in sections 5 and 4 to bold in section 3 and "plucky" or harsh in sections 2 and 1.

I am afraid I have become somewhat wearisome, but it is necessary that I should give details, for the lessons taught by them appear to me at least important. I find that pyro by itself is inactive as a developer; that no matter how long the exposure within reasonable limits, there is no "flashing up of the picture" (dear old, deceptive phrase) if the alkali be sufficiently small in quantity; that the quantity of alkali required in a developer is in proportion to the exposure, and that the correct amount can be ascertained only by the tentative method of development described in the preceding paragraphs: that "fog" is caused by an excess of alkali; and that bromides give harshness of gradation unless the exposure has been excessive and the alkali is proportionately large. I remember Mr. Ewing, during the course of his demonstration, likening pyro to a locomotive engine, the alkali to steam, and bromides to the brake! I think he is right, and with him I should like to ask of what use is an excess of steam if the brake has to be employed to prevent a catastrophe? Employ just enough steam (alkali) to make the engine go at the rate desired, and leave the brake sweetly alone for emergencies. There is no sense in adding an excess of power only to cancel it by an equivalent restraining force. If the restraining force be large, prolonged exposure must be given to secure the same delicate gradations of tone as a shorter exposure without a restrainer would give—otherwise the negative would present an under-exposed appearance with harsh, or, as amateurs love to call it, "plucky" gradation.

In the wet collodion days the employment of chemical restrainers was a necessity. The invisible image was covered with a sensitising film of silver nitrate, and if on that the developing agent, ferrous sulphate, was allowed to act in a pure unadulterated form, there would be an immediate deposit of the metallic silver required to build the image. Let anyone one who wishes to know the result of an addition of ferrous sulphate to silver nitrate try the experiment on a small scale. To prevent the deposit, a restrainer, acetic acid was added, which allowed the silver to gradually deposit itself on the reduction product alone. As I said before, the acetic acid restrainer was a necessity, but with gelatine plates there is no such need. The invisible image is formed in the silver molecules embedded in the gelatine; there is no free silver on the surface to be reduced, the image is built up from below, and for the building up the continued action of the developer on the gelatine is necessary. If an unrestrained developer of suitable *strength* is applied to an exposed gelatine plate, all it can do is to attack the reduction product at first, and then gradually, by penetrating the film, to aid in the building up of the photographic image by electrolytic action. The gelatine itself, by reason of its viscosity, acts as a physical restrainer, and it wants no other restrainer. But as the developer acts on the plate it takes up the bromide, and its action is slowed with each moment that elapses.

In "instantaneous" work the addition of a bromide to the developer is a decided disadvantage. It restrains the appearance of details where they are most wanted, and by allowing the parts that have received long exposure to gain density, it ensures that harshness of gradation of tone that we should avoid. If bromide is essential to the happiness of an amateur, and he won't be happy till he gets it, let him by all means enjoy his soot and whitewash negatives. For my own part I prefer a horse that needs neither bit nor bridle, and can be depended on when called to do all I require, to an animal that will run away with one unless well held in.

Mr. Ewing's lecture has led me also to experiments on the influence of colour in gelatine films. But I have already taken up too much space, and shall lie by till the *Journal* appears again.—*Journal of the Photographic Society of India.*

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"TENTATIVE" DEVELOPMENT.

BY W. K. BURTON.

(*Concluded from page* 396.)

WHERE it seems likely, or at least possible, that some of the negatives have received many times the normal exposure, it is best to reverse the process—that is to say, to begin development in the "intensifying developer," transferring the plate to the normal developer as may be necessary to bring up detail. There is one objection to this style of work—namely, that if the exposure has been only normal, or a little more, the density is liable to get too great before the necessary detail is out. In overcoming this difficulty I have found eikonogen to be of the utmost use. Every one who has used this re-agent must have recognised its tendency to bring out detail, without giving much density. In working with the "intensifying developer" first, I keep handy a measuring glass of a solution containing about 2 per cent. of eikonogen, and 5 per cent. of crystallised carbonate of soda. Should it appear that density is likely to get too great before detail is sufficient, the plate is flowed with this solution, just as was described for the bromide solution above. This brings up detail very rapidly, but adds little to density. In winter time it is quite necessary to keep the solution at a temperature of from 60 to 70 deg. Fahr.

I have talked above of the enormous power that we have of compensating, in development, for variation in exposure, and I consider that I am perfectly justified in so doing, for recent experiments have shown me that, in the case of ordinary landscape work, it is possible, supposing 1 to be the normal exposure, to give exposures of 40, or in some cases even of 80, and to get negatives similar to those got by the exposure of 1. By similar negatives I mean negatives giving prints such that the most experienced photographer would not be able to tell which print was from the negative that had had an exposure forty times what the other had had, and this is by variation in the developer only, without resorting to intensification. With intensification it is possible to compensate for still greater differences of exposure.

In these cases, I knew beforehand what exposures the plates had had, and developed accordingly. I do not pretend that, if I were ignorant what exposures the plates had had, I could, by tentative development, have compensated for such enormous variations in exposure as are mentioned here; but I think I am making no overstatement when I say that, were a set of plates with the working of which I was familiar exposed on landscape subjects, some having received normal exposures, others exposures anywhere between normal, and twenty times normal, I could undertake to develop them tentatively, and to produce in all cases such results that no one examining the prints would be able to say which were from negatives that had received normal exposures, and which from negatives that had received exposures many times longer than normal.

The experiments I have just been writing of were camera experiments, but they were led up to, and are being supplemented by, a large number of experiments with a special form of sensitometer that I devised somewhat more than a year ago. In this, plates measuring 12 by $2\frac{1}{2}$ inches, cut from 12 by 10 inch plates, are used. The plates are exposed, in transverse strips, directly to an open light. The exposures vary as 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1,024, 2,048, 4,096, and 8,192. That is to say, that, if the first strip receives a certain quantity of light, the second receives twice of much, the third four times, the fourth eight times, and so on. Even if the first receives only the minimum amount of light that will produce a developable image, the range of light represented by these figures is very great. I have, however, persuaded myself that it is not more than is often represented on negatives, and is not more than a good plate will register.

After the plate has been exposed, it is cut in two longitudinally, and the two halves are developed with any two developers that it is wished to compare. If it is wished to compare two brands of plates, the strips are cut only $1\frac{1}{4}$ inch wide, and two are exposed side by side. I do not pretend that the light is uniform, nor that the succession is, in the case of the shorter exposures, exactly as stated, but that is of no consequence, as, whatever irregularity there may be in this respect, the two halves of the strip have exactly the same exposure.

I send you a print from a slip which illustrates very well the enormous control that we have over our results by development. In this case, one-half of the strip was developed with a normal developer containing 2 grains of pyro, and 20 grains of crystallised carbonate of soda per ounce of developer, there being no bromide. In the case of the other half, the pyro was increased three times, and 10 grains of bromide of potassium was added to each ounce of developer. The two halves will be readily distinguished. It will be seen that the strip that has had the least exposure is visible in the half that was developed with the normal developer, whilst, in the case of that with the restrained developer, the eighth strip is of just about equal strength. It will be seen, further, that the opacity rises much more rapidly in the case of the half developed with the restrained developer than in that of the other half. Again the last four strips of the half developed with normal developer show reversal and halation. In the case of the other half, density keeps increasing up to the last strip, and there would be farther increase with greater exposure, whilst halation is very slight. I consider that the two halves of this plate represent compensation for exposures varying as at least 100 to 1.

P.S.—Since the above was written, I have pushed my experiments concerning the compensation in development, for unnecessarily long exposures, much farther, and have got over the difficulty of difference in the colour of the image. Indeed I incline, at present, to the view that it is possible to compensate for indefinitely long exposures. The only limit I have found is human patience, for the longer the exposure becomes, the longer is the time taken for development. I have, however, got the length of compensating for several hundred times the normal exposure.

I hope also to be able to give an expression for the increase of pyro and bromide that is necessary for any increase of exposure. What I mean is this. It being known that a certain quantity of pyro and bromide are suitable to give a good negative with normal exposure, I shall be able to give an algebraical equation whereby it will be possible to find out how much pyro and bromide would be necessary to give a similar, or so far as judgment by the eye goes, an identical negative with any other exposure. I have worked out such an equation for one brand of plates, and have now only to find whether or not it applies to others. So completely does it apply to the one brand of plates that I speak of, that instructing an assistant, who knew nothing of the formula, to go out and expose a series of plates, giving the first the exposure he thought right, and other exposures increasing in the ratio of 2, 4, 8, 16, 32, 64, 128, and giving him the quantities of pyro and bromide to use, worked out by the equation he brought me after a couple of hours' work in the dark-room, eight negatives that I could not distinguish one from the other.

The quantity of the alkali was not varied, and intensification was not resorted to.—*Photographic Times.*

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"DODGES."

BY C. O. GREGORY.

(*Concluded from page 395.*)

The Negative.

I NOW come to dodges in printing from the negative, and will suppose that on examination of the negative unpleasing defects are observed. There may be shadows too intense, one side thicker than the other, the foreground too thin, &c.; all these matters want attention and correction, and for these and similar faults I prefer simple to more elaborate means, and I don't think there are many faults but what can be corrected by means of semi-transparent material, tissue paper and the like. Use it in this manner. Suppose the lens does not cover the plate sufficiently, the corners of the negative are then thin and print dark; in such a case gum pieces of paper on the corners of the frame to shade off the corners and so prevent any unpleasant appearance. A road is perhaps too dense; cover all except the road with tissue or yellow paper; one side of negative thinner than the other and so prints quicker; paste tissue paper over one side. Perhaps a central portion of the negative is thin; cover the whole of the negative with tissue and a second or third piece over the centre, and so on; in fact, I know nothing more generally useful than tissue paper. It is also invaluable for thin negatives; use one, two, or more thicknesses; in fact, any negative is better for printing under it. As an example I show you a print from a negative of an interior about the worst I can find, and another print from the same negative dodged with tissue and yellow paper. I think the superiority of the latter over the former is apparent. Another example is of a workshop; the light at the window is rather strong, consequently, printed as usual, it is unsatisfactory, but if, after printing to usual depth, a piece of opaque paper is taken with an aperture cut the shape of the window, and the window is printed deeper, a great improvement is made.

Cardboard Shades.—For landscapes a bent cardboard shade is very useful, and is a simple means to dodge a negative with a thin foreground. If any clouds are in the negative it will help, if not entirely, to bring them out. I show you an instance of a print from a negative without a shade, and another using a shade, and I recommend you to try it. I first saw this idea mentioned in a paper by Mr. Blanchard, and I consider it a valuable dodge.

Negatives are further dodged by working on the back. In the case of a group some of the faces may print too dark, in which case a light touch of pale blue paint on the back of the negative will improve the print; also tissue paper can be pasted on the back or gummed by the edges and worked on with a pencil or crayon to increase the high lights, cutting away parts of the paper to increase shadows. I show you a portrait which I think treatment of this kind has improved. It is from the negative of one of our members who kindly lent it me to experiment with. No. 1 is a print from the negative in its first state. No. 2 the same after intensification with mercury and ammonia. No. 3 is after the negative had been backed with tissue paper and worked on roughly with pencil to take out the brick marks, also vignetted. The cabinet is from the same negative printed in a half-plate frame as before described.

Matt varnish on the back of the negative is also another means of improving a print, but, unfortunately, it is a dodge of itself how to get the varnish on the plate, and I do not think it will be out of place to describe how it is done. When you first try it you will perhaps get the varnish on the under-side of the plate, or over your fingers, up your sleeve and on the carpet—in fact, anywhere except the right side of the plate.

To coat a plate with matt varnish, the plate must be cold; but with spirit varnish it must first be warmed. When varnished the plate must be laid at one side to dry, and when dry and hard can be worked upon with pencil and brush and parts scraped away with the knife to increase the shadows if necessary. This mode of dodging is useful in adding clouds to a weak sky. Get a suitable cloud negative as a guide, and, with pencil or crayon and stump to shade off, copy as well as you can the cloud negative: with a little practice it is easy to get passable results.

When thinking over this matter, it occurred to me to try ground glass itself, and I think (after trial) that it has some advantages. It is remarkably easy to work upon, and can be used over and over again. To use it, take a piece of ground glass and place it ground side up on the top of negative film side up, work on it to increase high lights as usual with black and blue pencil, blue for medium effects. To increase the shadows it is not possible, of course, to scrape away the matt, but the same effect can be obtained by thin gum-water; put it on lightly with a small brush, the thinner the better (this is important, because if thick it will have a diminished effect), and let it dry. After doing what you think necessary, place the ground glass at the back of negative, the ground side next back of negative, then print as usual. A softer effect will be produced by placing the ground glass on the back of the negative, working on it and printing in the same position. In the former case, only one thickness of glass intervenes between the ground side of glass and the film of negative; in the latter case there are two thicknesses. If you wish to use the ground glass again, the work can easily be removed by that useful kind of soap that "won't wash clothes." Matt varnish is very inferior to ground glass because of its liability to damage.

Vignetting.—There are many ways of doing this, and many effects to be produced. A good plan is to make a cardboard screen for the purpose, to fit on top of printing frame, leaving a space between negative and cardboard Cut a hole half inch smaller than you wish your vignette to be, then gum tissue paper round the edges, also a piece of tissue paper over the whole aperture, this softens the effect. It is also advisable—in fact with gelatino-chloride paper necessary—to stuff wool between the cardboard and glass to prevent the light unduly spreading over the whole print.

Distortion.—It may happen that, notwithstanding the use of a swing back, distortion occurs through the camera being pointed too much towards the sky. This can be cured as follows:—First make a transparency in the enlarging camera, tilting the negative and plate for transparency until the picture appears as it should do. Develop the transparency, then make a negative from the corrected transparency, or, if the transparency is not quite right, the negative can be further corrected in the same manner, and, with care, the result should be satisfactory.

A Shifting-back Printing Frame.—This frame I bring under your notice was some time ago broken and repaired in such a manner as to be useless owing to the back so easily shifting. For a time it was discarded, but since it has been found useful in placing prints on the negative again in cases of under-printing. Place the negative in the frame, and secure it to prevent it shifting, then place the print to be corrected as nearly as possible in its proper position, fasten up as usual, and it will be found that the back and print will shift about together, so that by looking at the front it can be accurately adjusted to the negative with very little trouble. I find it useful when letting inexperienced persons do printing, as I can quickly correct a dozen prints, and find it a useful contrivance.

Exposure.—There is often a great discrepancy in the calculation of exposure by different persons, in my experience as much as 6 to 11. The pulse-beat in middle-aged persons is nearly correct for seconds. A dodge is also recommended of repeating, as rapidly as possible, 1, 2, 3, 4—2, 2, 3, 4—3, 2, 3, 4, and so on: each four figures will so nearly represent seconds that the difference may be disregarded. It is also recommended to hang from under the tripod head a small weight on a cord 40 inches long —39 inches I believe to be correct—this will give seconds each sway of the weight. A much shorter cord is undoubtedly more convenient, such as used on an exposure meter in the market. This, to give half seconds, should be 9¾ inches long. The swing to and fro will be one second. Considering the inventive genius shown in photographic matters, I am surprised that no one has yet placed in the market a small, simple seconds' ticking instrument, so that by giving a few turns the instrument would tick seconds when required. It seems to me to be a want in the dark room when enlarging.

Toning.—When I first tried gelatino-chloride printing-out paper, I found great irregularity in toning. The first prints toned all right, but the last of the batch hardly got any gold owing to the greediness of those first dealt with. This difficulty can be overcome in the following manner:—Suppose there are eighteen prints to tone, make up the toning bath, pour half of it into the toning dish, and place six prints in it; when they are toned, take them out and add half of the remaining bath to that already in the dish and tone six more: take them out and add the remainder of the bath and tone the remainder: all the prints will by this arrangement be toned in a regular manner. I mention this as I have heard of this difficulty twice within the last few days.

Registering Clouds.—This is a subject which I think deserves some consideration. Clouds too often look very funny in our landscapes, printed without much regard to lighting, and my object in mentioning this matter is to suggest a method of knowing what clouds will fit a landscape. In one of the journals, some time ago, there was a paper on the subject, and it was recommended to take various particulars—time of day, point of the compass, &c., and a diagram, rather a complicated proceeding, and I confess I did not get quite to the bottom of it. My plan is a simpler one, and is this:—Paste on the top of camera a small piece of cardboard, or paper, marked like the face of a watch, with the XII. pointing the same direction as the lens. When a plate is exposed draw an imaginary line from the centre of cardboard to the sun, and mark the plate in your exposure plate the No. the line intersects—say it is 8, No. 8 cloud and No. 8 landscape will always fit: No. 8 cloud reversed will fit a No. 2 landscape, and so on. The number need not be very exact: a No. 5 or No. 7 cloud may do for No. 6 landscape. I don't say the cloud will suit, I only say the lighting will be the same. The altitude of the sun should perhaps be taken into consideration, but this can be readily discovered by referring to your note-book for the time of day the negative was taken. This system is easy of adoption. It is not necessary even to have a diagram on your camera, for with your watch on the top after each exposure, a note of the number can be obtained.

Printing Clouds.—I have very little time for cloud printing, and am obliged to adopt the following rough-

and-ready dodge to print clouds quickly. For this method you must have a thin negative. I do not use a frame, but paste brown paper to the bottom and top; place the print on the negative, and turn the brown paper at the top and bottom over the print. I then place the back of a printing frame in the usual way and clamp one side to the negative, holding the other between finger and thumb of left hand. I shade the front portion with brown paper or anything that comes handy, roughly follow the outline with wool, and print in direct sunlight. Should there be a tower or high building with sharp outline, print it on a separate piece of sensitised paper, cut it out correctly, and stick it on the print and proceed to print from the cloud negative. Nearly all my clouds are done in this manner, and only take a very short time each.

One other contrivance I will mention, and that is a convenient way of drying sensitised plates. You may attempt to develop a plate not exposed; don't throw it away, well wash and dry. There may be other occasions when you may be puzzled for the want of a drying cupboard. For a few plates it is not necessary to have a cupboard: use your old plate boxes; the shape I show you is excellent (a sliding box). When you have a plate to dry, let it drain, wipe the back, place in the empty box film side up and close; you will find it quite dry in the morning, presuming the box had previously been kept in a dry place.—*Read at the North Middlesex Photographic Society.*

REVIEWS.

Amateur Photography. By W. I. Lincoln Adams. (*New York: The Baker and Taylor Company.*)

This is a popular and elementary manual of photography by the talented editor of the *Photographic Times*, and, as we learn from its preface, the subject-matter has already appeared in periodical form. The book, we need hardly say, is a perfectly reliable one, but yet it does not quite satisfy us as a guide to the beginner, for whose benefit it is evidently written. The pages with reference to apparatus, field-work, and dark-room manipulations might very well have been amplified, and if it were necessary to curtail space, the chapters on composite photography, colour-sensitive plates, and the "Fathers of Photography" might have been omitted. The book is well printed, and, in other respects, leaves nothing to be desired.

* * *

The following recipe for a paste suitable for attaching paper labels to bottles appears in a French journal:—

	Parts by Weight.
Gum arabic	120
Gum tragacanth	30
Glycerine	120
Oil of thyme	2½

Macerate the gums separately in a little water; shake the gum tragacanth until a sticky emulsion is produced; mix in the gum arabic solution, and then filter through fine linen. Next add the glycerine, in which the oil of thyme has been previously dissolved; finally make the liquid up to about two pints with water. It is better to use distilled water. The paste is stated to possess very remarkable adhesive properties, and to keep well in sealed bottles.

AN IMMENSE PHOTO ASTRONOMICAL TELESCOPE.

IN the workshop of Messrs. Alvan Clark & Sons, of Cambridgeport, two huge telescopes are being constructed. These instruments are destined to play an important part in the further advancement of astronomical science. One of these is intended for the Kenwood Observatory of the University of Chicago, and some idea of the size of the lenses can be conveyed by stating that they are forty inches in diameter, four inches larger than the telescope used at the Lick Observatory.

But the instrument that possesses for us the most interest is the Bruce photographic telescope, the outcome of the generous gift of 50,000 dols., which Miss C. W. Bruce, of New York, made to the Astronomical Observatory at Harvard College, for the construction of a photographic telescope having an objective of about twenty-four inches aperture, with a focal length of eleven feet.

In construction, the instrument differs from most other photo-telescopes in having for its object glass a compound portrait lens. A similar one, but having an aperture of only eight inches, has been used for several years in Peru for the purpose of photographing the southern stars. With this instrument it is possible to photograph stars two magnitudes farther than those obtained with a four-inch telescope, and a corresponding advantage is hoped for with the Bruce instrument.

As soon as the lenses are completed they will be tested in a wooden box constructed for the purpose. This box is about fourteen feet long and four feet square, and is swung between two uprights in such a manner that it can be hoisted till it is in an almost upright position. Inside is contained a red painted iron tube to hold the lenses. On the first clear night the instrument will be pointed toward the north star and tested.

The frame of this huge photographic telescope occupies nearly the whole of one side of Messrs. Alvan Clark's machine shop. Its weight is nearly five tons, and as soon as completed the whole will be set up at the Harvard Observatory. Here it will undergo a final test, and if this proves satisfactory, it will again be started on its travels, shipped to Peru, and by railroad conveyed six miles inland to Arequipa, when it will be carefully transported to the top of the hill upon which the South American branch of the Harvard Observatory is situated.

Experts are of opinion that this telescope will photograph thousands of stars never yet seen by the most powerful telescope.

In pondering over these things does not the awfulness of space strike us and bewilder us? Science and skill succeed each year to unravel more and more of the hidden, but where can it end? Were a more powerful telescope constructed, more stars would make themselves known to us, and so on, perhaps, until the plates were covered entirely with images of these mysterious worlds, shining and rolling far beyond and hidden in the obscurity of immeasurable distance.—*Photographic Times.*

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JUNE 30, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London. All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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TOURIST PHOTOGRAPHY.

WE may feel quite certain that, in the holiday season now approaching, more cameras will be carried by tourists than has ever been the case previously; for, in spite of the many prophecies that the revival of amateur photography was but a fad, soon to be forgotten in favour of some other passing fashion, photography has shown itself to be a thing of far more permanent character, and one which has "come to stay." Many tourists look upon the camera as a most necessary part of the outfit to be provided before a holiday jaunt can be undertaken, for they rightly consider that the pleasure of the outing is doubled when they have the power to bring back such pleasant mementoes of their wanderings as photographs represent; and of course no photographs can be of such interest as those actually taken by the traveller. Hence it comes about that just now there are many who are exercised in their minds as to the nature and the amount of apparatus with which they shall burden themselves.

It is a great pity, from a photographic point of view, that the time for leaving home for holiday-making should be so late in the year. It does not matter so much to those who prefer to spend their time in foreign cities, except that the autumn sun sinks in the west at a far too early hour; but to the man who prefers to recruit his energies "far from the madding crowd," among his native hills, and moors, and lakes, May and early June are far preferable, if his mind is bent on photography. At this time the foliage has retained its spring beauty, and one can almost designate each tree from its particular shade of green, instead of relying upon the shape of its leaf and the disposition of its branches. A month or two later this diversity of colour disappears, and one green tree is much like another, so far as the tint of its clothing is concerned, until the time comes when, previous to the general fall of leaves, the red, yellow, and orange tones assert themselves. The actinic value of the varied foliage tints, which are peculiar to spring and early summer, will be recognised at once by comparing a photograph of sylvan scenery taken, say, in May, with one of the same locality which has been secured in August. In the one, the wonderful range of tones will suggest that some specially prepared isochromatic plate has been employed, while the other will, perhaps, give rise to the common remark: "What a pity it is that green trees in a photograph look so black." This difference between spring and autumn foliage is of the greatest importance in photography, and does not receive the attention which it deserves. But the jaded city worker is generally too glad to get away from the town and all that is in it to care about the exact state of the trees, nor does he stop to realise that a late holiday robs him of some hours of daylight which he would secure if he could arrange to get away earlier in the year.

A far more pressing question for most tourist photographers is with regard to the particular apparatus which they shall carry. To this question no general answer can be given, for so much depends upon the individuality of the questioner. The size of the camera is, for instance, very much a matter of personal strength, to a certain extent a matter of taste, while the depth of the purse governs both considerations. We should never advise a tourist, unless he has some special object in view, to burden himself with unwieldy apparatus; for a large camera means large plates, and large plates want big developing dishes, and big negatives require great printing frames, until the impedimenta of a mere hobby assume the proportions of a manufacturing plant. For tourist purposes a small camera is the thing, and we would, by all means, supplement it by a hand camera to carry plates or films, or both. Cameras can now be easily fitted with a roll-holder without their capacity for plates being in any way interfered with, and a double-barrelled instrument of this nature is as convenient a thing as a tourist can adopt.

We have advised the tourist to possess himself of an ordinary camera, as well as a hand-camera, because it is very difficult to make one instrument serve the purpose of both. If there is a variety of work to be done lenses of different foci must be employed, and a long-extension bellows camera becomes a necessity. This form of camera has, too, a rising front, a swing back, and other conveniences that are not usually looked for or wanted in a hand camera, but are constantly required when carefully thought-out pictures are in progress. On the other hand, such a camera will often be useless where speed of preparation is a necessary condition of obtaining a picture. In country districts, where villages and farmhouses are passed, innumerable pictures present themselves which disappear unless seized at once. It may be a girl feeding chickens, a man grooming horses, or a thousand and one incidents of the kind. It is in these cases that the function of the hand-camera is found, and where it can do work not possible with a more elaborate instrument. The tourist is likely to find ample employment for both descriptions of camera.

THE PHOTOGRAPHIC EXHIBITION IN TOKYO.

We have heard much during the past few years of photographic progress in Japan, and have seen many striking examples of the work done in Tokyo, Yokohama, and Kyoto. Beyond doubt it is very excellent work, and the promise it gives of rapidly becoming better justifies the interest taken in it by public men, and encourages the zeal of the Photographic Society, which, since its organisation a few years ago, has grown to be an imposing and influential body. But Japanese photographers and artists of all kinds labour under a serious disadvantage in the remoteness of their country from the great centres of scientific and technical progress. The Japanese student of painting, eking out, in the vast majority of cases, a hand-to-mouth existence and unaided by munificent patronage, cannot go to Rome to breathe the atmosphere of Art's birthplace and derive inspiration from contact with its immortal masterpieces; cannot go to Paris to sit at the feet of the modern giants; cannot escape from his tiny room in a by-street or suburb, and from the companionship of squalid surroundings and hopelessly straitened circumstances. The Japanese student of photography is similarly handicapped. He lives far beyond the great stream of intellectual interactions and inventive interchanges. He hears of what is going on in the world outside him, but does not see it, or at best obtains only such fitful glances that they give little useful insight. But the Japanese photographer has now been materially helped along the path of progress by the action of the London Camera Club, which has sent to Tokyo a splendid collection of photographs displaying all the best results achieved by all the latest methods, and thus bringing Japan into direct touch with the world of Western photographic art. We believe that the credit of this most beneficent affair rests primarily with Professor Burton. His high reputation in the field of scientific photography, and his wide circle of photographic friends and connections, enabled him to prefer to the Camera Club a request that carried weight and enlisted support. To his exertions, and to the untiring energy he has employed on behalf of Japanese photography, this country owes the remarkable exhibition of 296 photographs, opened in Uyeno Park on the 14th instant. A private view of the pictures was given on the preceding day by kind invitation of Viscount Enomoto, President of the Photographic Society of Japan, and was largely attended by the leading residents of the capital. The building chosen for the display, or, to speak more correctly, the only building available at this moment, is not well fitted for such a purpose, being totally without attractive features of its own. But light and space are abundant, and the photographs have been disposed in a manner that we cannot too highly praise. It need scarcely be added that the arrangements for the comfort of the guests on the 13th inst.—music, refreshments, and so forth—were thoroughly good. To each person was handed a descriptive catalogue printed on tinted *crêpe* with charming decorative designs on every page, a work of art in itself. As for the photographs, it was in many cases difficult for the uninitiated to realise that such pictures were nothing more than mechanical reproductions. The impression conveyed was rather that of fine steel engravings, crayons, sepia paintings, pencil drawings—anything, in short, except the product of the camera. In truth one is immediately taught by such a display that photography has entered a new era, that it has passed into the hands of artists from those of artisans, and that the goal towards which it is pushed is to hide the camera completely and approach as closely as possible to the easel and the canvas. We do not propose to speak here of the various technical methods represented in the exhibition. That branch of the subject must be reserved for a future notice. Our theme for the moment is the artistic side of the display: its pictorial rather than its photographic features. What conspicuously attracts attention is that to this mechanical work—at the outset wholly objective—there has now been imparted a strongly subjective character. The artist makes himself felt not merely when he reproduces landscape, but even when he takes a likeness. Instead of thinking only of the object represented one instinctively turns over the leaves of one's catalogue to look for the name of the artist. There are, of course, "tricks of the trade," which, however striking their effects, offend by their artificiality. The use of the flashlight is an instance. Lyddel Sawyer's pictures, for example, and R. H. Lord's, beautiful and interesting as they are, suggest too much clever mechanism. "The Boatbuilder" (No. 5), "Reflections" (No. 3), "The Toper (No. 8), "Idle Moments" (No. 17), and so forth, will be scanned admiringly by many eyes, but are not pictures that would improve upon acquaintance. Then, again, there are faults of technique that recall the still tentative character of the art. In No. 15 ("How's that"), for instance, we have a delightful subject spoiled by a monstrosity: the hands of the figures present themselves under a magnifying glass instead of through the lens of a camera. No. 43 suggests the idea that a solid section of sea has been set up as a wall beside a group of women who sit and lie gossipping at its base. Moreover, the greatest artist is evidently not yet absolute master of his methods. F. M. Sutcliff's "Water Rats" (No. 54) is one of the best things in the whole exhibition, but the same artist's "Hurricane Corner" (No. 60), and "Among the Breakers" (No. 61), leave a great deal to be desired. As for Henry Stevens' flower studies (Nos. 117, 118, 119, 120, and 123), they are most aggravating. Paper blossoms equally stiff and formal would be rejected as failures in millinery. Speaking of failures, attention must be specially directed to Henry Van der Weyde's remarkable work with the "Photo-corrector" (*vide* Nos. 169, 170, 171, and 172). This artist has devised a mechanical process—the secret of which remains entirely with himself—for correcting the faults of a negative. If the hands or head of a portrait be out of proportion, his "corrector" puts them right in a few minutes. In one picture he shows us a female figure seated on an artistically false plane with respect to the environment, and in another, the same figure, after ten minutes' exposure in the "corrector," has risen to a proper and pleasing level. These results are most interesting and curious. We do not know whether Weyde's remarkable machine could be utilised to correct faults due to the difficulty of combining different negatives in the same picture. If it possesses that capacity, a pretty wide field for its employment offers even in the admirable pictures of the Camera Club, for the defective joining of negatives often produces lines that could never exist in Nature. But, on the whole, photographs calling for the use of the "corrector" or inviting unfavourable criticism of any kind, are rare exceptions in this collection. The great majority of the exhibits are surprisingly beautiful. It is hard to particularise amid such universal excellence. The four sent by Bernard Alfieri (Nos. 19, 20, 21, and 22) are types of a numerous class—lovely bits of soft delicate work and feelingly selected subjects. In Nos. 39 and 40 we have crystal clearness of detail combined with exquisite lightness and grace, while 19, 20, and 22 suggest pencil drawings rather than photographs. Hector Collard's series, Nos. 236, 237, and 238, seem to take us as far away from the camera as it is possible to get; and Tyser's (163) brings us back to it almost as closely as did the photographs of twenty years ago. In snow scenes, Mrs. Main —*vide* Nos. 165, 166, and 167—is very successful; but the exhibition contains nothing of this type equal to Ogawa's latest work. Ogawa, indeed, is competent in certain lines to stand abreast of the best artists of the Camera Club; but he is probably the only Japanese photographer of whom that may be said. Very interesting are the works of George Davidson (Nos. 82 to 89), and R. Briant (Nos. 146 to 157), representing the school that eschews everything like a sharp edge or clearly defined outline. Nature, indeed, always deals in masses, and never in lines: yet it is not possible to say that these lensless photographs reproduce Nature truthfully, however correct may be the theory underlying the method. Mr. P. H. Emerson sends a beautiful series (Nos. 260 to 271). One examines them with more than common interest, knowing the immense influence which this artist has exercised on photography. To Emerson, indeed, more than to any other single worker, may be attributed the disappearance of the old-style photograph and the birth of the processes to which we now owe so much; a change not to be overrated, seeing that it has induced artists to take up photography as a study worthy of the best intellects and the highest ideals. Nos. 181 and 295 deserve special notice, the first because of the artist's absolute success in concealing every evidence of art; the second because of its extraordinary softness and absence of all perceptible debt to any mechanical process. Shapoor N. Bhedwar, a Hindoo artist, sends a series of very fine photographs—Nos. 135 to 140. They are technically perfect, but as works of art they do not stand on so high a plane as some of their fellow-exhibits; the grouping of the figures is too studied. This fault is often perceptible, especially when attempts are made to pose models in positions of passion or strong emotion. Great painters conceive such situations with more fidelity than models act them, and the photograph is seldom really successful when applied to these purposes. We need scarcely say that the instantaneous process is admirably represented. Nos. 221 and 222 are good types, powerful and picturesque. Several interesting examples of single colours obtained by the carbon process are exhibited. "The Sea Dream" (No. 113), by W. Clement Williams, will probably attract much attention as a monochrome of this class, but for our own part we find it somewhat heavy, its sea solidified and its sky stereotyped. We prefer such seascapes as those of Bennett (*vide* Nos. 105 to 109). But space fails to particularise even roughly all the beauties of the display: the portraits (especially those of Mrs. Cameron and Fred. Hollyer), the twilight and night effects, the moonlight scenes, the peeps of exquisite landscape, the seascapes, and so forth. It must be sufficient to say that the collection shows modern photography under all its most artistic and scientific aspects, and constitutes such a display as is not likely to be again visible for many years in Japan. Perhaps we ought to explain that, though we have spoken of 296 pictures only, the total number actually shown is 341, but the last forty-five, sent by the Foochow Camera Club, have no business to appear at all. Why they were sent and why they have been hung we fail to understand. It is scarcely necessary to suggest that no one taking any interest in art should fail to visit this exhibition. Nothing like it has hitherto been organised in Japan. The Japanese public owes much gratitude to the Photographic Society of Japan and to the Camera Club of London.—*Japan Mail.*

* * *

WHISTLERISTIC PHOTOGRAPHY.

BY SOL, JUNIOR.

THE parent and sexton of "Naturalistic Photography," in a paper recently published, brought Mr. Whistler a great deal to the fore, by quoting some of his smart sayings, and it occurs to me to try and work out in what way, if at all, Whistler's impressionistic art may be of service to the photographer in pointing a oral or adorning the tale.

If we exhibit a photographic print that is somewhat t of the common, every one is anxious to inquire how was produced, and with what lens, aperture, plate, veloper, &c. In the same way, before we approach the atter from the artistic standpoint, let us look at it from actual and matter-of-fact point of view : and perhaps a ort description as to how, in a measure, Mr. Whistler ts his effects may not be without interest.

The author of the work above mentioned, in his usions to Whistler (I drop the "Mr.," he generally eaks of himself as "Whistler"), with whom, by the y, he conveys the idea that he is not personally quainted, appears to look upon him more as an oracle an a painter, and also seems oblivious of the fact that is more of a humourist than either ; and when he dertakes the somewhat risky responsibility of quoting m, he entirely loses sight of the fact that when histler is most oracular and sententious, he is, as a rule, ore than ever laughing in his sleeve ; and in this last oduction of his, he seems to have taken *au seriaux* histler's joke, since appropriated by a distinguished amatist, that to be understood is to be found out, and s in consequence written a psychological-decorative-art eatise that certainly attains his desire for seclusion.

Many years ago, when Mrs. Cameron first produced her ebrated photographs, I remember being told by a friend hers that she adopted every means in her power to do ay with the sharp searchingness of her camera, even to e extent of boring holes in it, to let in the light. Now, histler's work is due in a great measure to the holes in camera, as it were—that is to say, he is very shorthted, so that with a natural faculty for not seeing too ich, added to a cultivated desire to reduce that to a nimum, he gets a somewhat similar effect of breadth in work, naturally, which Mrs. Cameron obtained artiially. Besides this useful infirmity, he has, by which m some lunatic once described "genius," that "infinite pacity for taking pains." Nothing is done recklessly or oughtlessly, or without a distinct motive ; he does not e "snap-shots" at anything, and if he even appeared do so, you might be very sure that he had rehearsed it ll beforehand ; for, behind the laugh and the joke and e smart speech, there is a long head, always a-thinking, thing is left to chance. As an instance of this painsingness of his, I remember on one occasion he was ing chatting with a friend of mine in a club one nday afternoon ; it was about the time that one of his hing exhibitions was open. The subject of the critims in the papers, of which, of course, there had been a great number, cropped up, and presently, Whistler, in his short, sharp, decisive way, said, "Ah ! yes ! um, yes ! but there's one fellow I can't find out." "What do you mean ?" said his companion. "Why, I mean this : I'm not such a fool as people suppose ; *I know every article that's been written on the exhibition, and I know every man that's written them*"—after a pause—"except one, and that I can't find out at all ; it isn't the editor of the paper, I know, for he hasn't the technical knowledge, and besides, I've asked him, and sounded him as to who it is, but I can't find out." "But why," said my friend, "bother about this man ?" "Why," replied Whistler, "d——n him, he's the only one that's right :" and he proceeded to quote part of the notice, in the middle of which a look of conscious guilt, or glee, or something appearing on my friend's face, caught Whistler's eye, and the truth dawned upon him, and quick as a flash, with his long forefinger extended, came the remark, "Why, it was you, you villian," which happened to be correct. My friend, in his notice of the show, had described Whistler's etchings as not etchings at all, but as skilful manipulations of printer's ink, which Whistler agreed with entirely, and enlarged upon the subject, describing how the proofs were produced, there being, of course, a considerable substratum of "etched" line work, but each proof was printed by himself personally, and each by the aforesaid manipulation of ink made different to every other, hence the individual charm, and besides, the plates themselves would be useless to any one else, as they could not be put in a press and printed off by the thousand, like most of the etchings with which the print-shops are as a rule deluged.

In his painting, Whistler's manner of work was—and, I suppose, is still—entirely different to the usual way. He does not carry a palette and brushes on his thumb ; he uses a mahogany table for a palette, and his brushes are generally very large, and his canvas of the roughest ; and, having duly considered his subject, his tints are mixed to accord with a certain harmony in his mind, and then he sets to work. If it is a portrait—and, as on the occasion of his celebrated action against Ruskin, when he was twitted by the opposing counsel for having charged so much money for what only took him a day and a-half to paint, he pointed out that it was not the time employed in putting the paint on so much as it was the labour of a lifetime to learn how and where to put it on—if it is a portrait, as I said, the subject is carefully thought out first, and then, the sitter being put up against such background as he thinks will harmonise with the costume of the figure—as often as not a black one—the canvas is put up *by the side* of the person to be painted, and, with his coat off, and his table-palette at the other end of the room, he sets to work, running backwards and forwards, comparing the original side by side with the presentment ; and so a life-size portrait is not infrequently painted in a couple of hours.

"Yes !" you say ; "but what has all this got to do with photography ?" Well, I think you are justified. I admit it is a somewhat difficult subject to explain on paper, so perhaps I have tried to cheat your senses by some little odd interesting particulars of a clever man.

It is quite allowable. Does not the gentleman known as the "Prince of Journalists," on the staff of the *Daily Circulation*, often write you an article starting, say, on the subject of straw hats, and then bursting into an elaborate panegyric of the Great Wall of China, garnished with some anecdotes about Peter the Great; a railway journey to Marseilles; the correct solution of the knotty point in the discussion as to whether fricasseed turkey should be prepared with four tablespoonfuls of cream to the yoke of one egg or *two;* whether there are as many flats in London as there might be; and then finishing up with the remark that straw hats may be all very well in their way, but, for his own part, he has always, for the last thirty years, worn a white waistcoat, and intends so to do till death?

Seriously, there is something to be learned from Whistler's work by photographers. The nearest approach we have got to it as yet is in the flash-light process, many pictures produced by this agent being very Whistleristic. There were some at the Crystal Palace Show lately having all the breadth of treatment and charm of Whistler's work. It is mainly attributable, I think, to a certain absence of intrusive details, and a spontaneity of expression; but, after all, it is the preliminary arrangement of pose and drapery and background, so as to make them all harmonise, that does most of the work. Photographers seem to be unaware of the enormous trouble and pains the painter-artist often takes with his sitter or model. They appear to think that it is sufficient to put up their sitter, and then, after two minutes spent in getting the pose, to expose their plate. It is not an uncommon thing for an artist to spend an hour or more arranging the folds of a skirt on his model, the drawing very often taking up much less time than the selection and arrangement of the garment and its folds. I think that very good results might be obtained by putting the sitter somewhere where he would not be so harshly and crudely lighted, and perhaps even the gauze curtain commonly used on the stage to give an effect of air and distance might be employed with advantage.

When the history of the Chicago World's Fair comes to be written it ought not to be left unrecorded that the tyranny of the Exhibition police, who, during the first five or six weeks, made the lives of the visitors a misery, was broken down through the medium of photography. Mr. Frederick Villiers, the well-known artist-journalist, does not disdain the use of a camera, and it was for using the instrument in the Exhibition grounds that the officious officials arrested him, although he was provided with the proper authority from headquarters. The scandal created by the arrest of an English correspondent was too grave to be lightly passed over, and the police have received so severe a "wigging" that their conduct will be very different in the future.

THE POSSIBILITIES OF THE TELESCOPE.

BY ALVAN G. CLARK.

A QUESTION sometimes asked is: "Will not a great increase in the size of lenses necessitate so much increase in thickness that a large amount of light would be lost by absorption?" In reply, I would say that we are a long way from experiencing anything very serious in this respect. The 40 in. discs, already mentioned, have only a combined thickness of some 4 in., and the lenses of an object-glass of even 6 ft. aperture would necessitate a combined thickness of not more than 6 in. To be sure, this increased thickness means some more absorption, but not to the extent that some suppose, especially with the best glass now obtainable.

An experiment made at my manufactory will, perhaps, best illustrate just what I mean. I took a block of dense flint glass 9 in. thick and polished on both edges. Behind this was placed common newspaper print, while in front of it sat a party who ordinarily, although not invariably, used glasses in reading. Through this 9 in. of dense glass, however, he was able with perfect ease to read the whole newspaper article by lamplight, and without optical aid. But this 9 in. in thickness is, as I have already said, much more than is necessary for even a 6 ft. lens, and who knows how soon still more transparent glass may be at hand, considering the steady improvement made in this line, and the fact that the present discs are infinitely superior to the early ones?

But even supposing that a slightly larger per cent. of light is lost by absorption per unit of surface in a 6 ft. lens than in a 3 ft. one, yet the area of the larger will be four times that of the smaller, so that the total amount of light must be vastly greater. Besides, everyone who has had experience in using telescopes knows that even if two instruments of quite different sizes can both see the same object without trouble, the larger one has a decided advantage from the greater amount of light and the consequent increased ease and facility of seeing, which enables us to do better work. In illustration of the great light-collecting power of a large telescope, I may cite the fact that with the 36 in. refractor, eighteen nebulæ were discovered at the Lick Observatory in a space only 16′ by 5·5′, and, more recently, a fifth satellite has been added to the planet Jupiter.

As regards the possible bending of great lenses under their own weight, although this sometimes occurs in a small degree, both sides are affected in a nearly compensatory manner, while in a mirror there is no such compensation. Any slight imperfection at any point on the surface of the lens, whether from defective workmanship or bending of the lens itself, produces much less error in the image than in the case of a reflector. The slightest imperfection of workmanship or distortion of the mirror from its own weight, as well as any difference of temperature between the front and back, will utterly ruin the image, while the performance of a lens would be much less affected by the same circumstances. Partly for this reason reflecting telescopes very rarely give any such definition as refractors.

Then, again, the refractor will give a larger per cent. of the incident light than the speculum metal reflector. I speak of speculum metal reflectors because the difficulty of preserving silver film on large silvered glass mirrors is so great, and the process of resilvering becomes so formidable, that I believe them to be impracticable.

From what I have said, as well as from other considerations, which it is not necessary to mention here, I have not the slightest doubt that our future advance must be along the line of the refracting telescope.

Until a comparatively recent date wooden tubes were used for telescopes, but these being sluggish as regards equalisation of temperature, a star image was often defective, and showed wings before all parts of the telescope had acquired the same temperature. This defect, however, has been completely eliminated by the introduction of the metallic tube, which, with a minimum amount of weight, gives a maximum amount of stiffness, and produces uniformity of temperature very rapidly.

But in order that the object-glass, as its size becomes so great, should also rapidly assume and constantly maintain uniformity of temperature in all parts, I have separated the crown and flint lenses in construction, so as to allow a free circulation of air between them. In the Lick telescope this separation amounts to some 6 in., with holes in the sides of the cell, thus allowing a free circulation of air between the lenses.

Thus we have to-day a refracting telescope that has steadily grown in size with increasing perfection in all its parts, and which has, beyond question, a still greater future before it. What the pledge of the past has been the future will fulfil. What, then, are the possibilities of accomplishment for these great telescopes of the future?

We may answer that they will do great work anywhere, although much depends on the circumstances in which they are placed. For the finest work they should have good atmospheric conditions, but these may be obtained at various places throughout the world, both at ordinary as well as higher altitudes. When used under such conditions much will be added to our present knowledge of astronomy.

The great and rapid strides which have lately been made in astro-physics, principally in the line of photometry, photography, and spectroscopy, added to the vast amount of work which will always remain to be done in the older astronomy of motion, opens a field for the most powerful means of research. These monster telescopes may be characterised as the great light-collectors and space-penetrators of the universe, and their province the solution of the ultimate problems of science.—*North American Review.*

◆

Cleaning Mortars.—Make a strong solution by dissolving caustic soda in a large bottle of water, which can be kept near the water-sink. First rub the inside of the mortars or other utensils well with sawdust, then use the caustic alkali solution, which will remove either resins or oils. Alcohol would do, but it is expensive.—*English Mechanic.*

CORRESPONDENCE.

TECHNICAL INSTRUCTION CLASSES.

Sir,—The great success of the series of Instruction Evenings held by the North Middlesex Photographic Society, which has just finished, and the keen appreciation shown by those gentlemen who attended them, has induced the Council to arrange another series for the ensuing half-year. The course is as follows:—

July 15th.—Personally conducted outing.

July 19th.—Development modified to soften harsh contrasts or brief exposure.

August 19th.—Personally conducted outing.

August 23rd.—Development modified to improve flat subjects or over-exposure.

September 20th.—Lantern slides by contact.

October 18th.—Cold-bath platinotype with gelatine development.

December 20th.—Bromide paper.

There are no fees of any kind for attending these classes, and we throw our doors open to gentlemen who are not members of our Society, so far as our space will permit. If those gentlemen who are strangers to us, who would like to take part in this series, will kindly write me, I will send them fuller particulars than I dare trouble you with.

Geo. Gosling, Hon. Sec.

Jubilee House, Hornsey Road, N.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

June 22nd.—Mr. W. E. **Debenham** in the Chair.

Mr. **Herbert Fry** and Mr. **Welford** were elected delegates to represent the Society at the forthcoming Convention.

Mr. **Welford** showed a catalogue of a photographic exhibition in Japan, and two volumes of collotype photographs, by Professor Burton.

Mr. **Sharp**, of Liverpool, showed a camera which was complete for ordinary use on a stand, but by fitting into a case became a hand camera.

Mr. **Welford** then read a paper on "Rapid Toning Bath for Gelatino-Chloride Paper," and demonstrated the process of toning, fixing, and drying on celluloid for matt surface.

Mr. J. S. **Teape** had tried the formula when first published. He had found that after toning a very few prints the action ceased or became very slow, and a tendency to mealiness set in. He also noticed a pinkiness in the half tones.

Mr. T. E. **Freshwater** had found no difficulty in toning gelatine paper with gold and acetate. He considered it easier than toning albumen paper, but more careful preliminary washing was required. He used a stock solution of 1 ounce of acetate of soda and 15 grains of chloride of gold to a pint of water. For use he diluted with four times its bulk of water.

Mr. P. **Everitt** understood that Mr. Welford's claim was for rapidity of action, and that he considered a positive disadvantage. There seemed to be no control over the tone obtained.

Mr. A. **Haddon** inquired what was the difference of result if carbonate or bicarbonate of soda were used.

Mr. J. E. Smith noted that none of the prints on the card illustrating use of different salts, including carbonate, were of the same black tone as those on the sheet showing carbonate toning only.

Mr. S. H. Fry thought it a misfortune that Mr. Welford should recommend a process solely for its rapidity. The double colour given to the prints was to him most detestable. Then he thought it a misfortune that longer or shorter immersion made no difference in the tone, so that only one kind of print could be obtained. He preferred the combined fixing and toning bath, and some published experiments had indicated the greater permanence of prints treated in that way.

The Chairman thought that in so far as those experiments might be considered conclusive, the greatest permanency was attained with the separate toning bath and sulpho-cyanide, and with that he fully agreed.

Mr. T. Bolas would ask Mr. Welford whether the tendency to pink colour in the lights was greater when the washing had been but slight. He would also ask Mr. Fry whether he could tell them of any toning bath that did not give two colours.

Mr. Fry said that with Andressen's toning the print was absolutely without double colour. Double colour was most noticeable when there was a sharp transition from light to shade.

The Chairman deprecated the calling of double colour in a print detestable. Some might find it an additional charm; it was a matter of taste. In carbon printing, where there was one mixture of pigment throughout, there was a distinct variety of colour, due, presumably, to the difference of thickness of the colour. In the shadows there might be a warm brown, whilst a light half tone would show as cool grey. The point that there was a finality of tone, as shown by the equalising by continued immersion of a print originally toned in patches, perhaps indicated something more important. If a print might be immersed for a long time in a still active solution after change of colour had ceased, it suggested that the substitution of gold for silver was a long way towards completion, and in that case they might look for greater permanency. Sulpho-cyanide toned prints he held to be more permanent than others generally, on account of the large quantity of gold they took up.

Mr. Welford, in replying, said that several speakers had been answered in a paper which they could not have listened to. It was unreasonable to ask for warm tones in a process which especially professed to give a finality of tone—one nearly black. The tendency to mealiness, mentioned by Mr. Teape, he had found much stronger with one make of paper than with another. It was absurd for Mr. Everitt to complain of want of control, which he had expressly renounced. The time of fixing and washing differed from no other bath. Gelatino-chloride prints, however, generally require more washing than other papers. The whole question of colour he had not dealt with, but had put prominently forward the rapidity of the process, and the finality of tone, which enabled one to overcome any stain or patchiness from insufficient moving. He agreed with the Chairman, that to deprecate a bath because it used a great deal of gold was altogether wrong. The reason that none of the prints on the card, showing different tonings and papers, quite matched those on the specimen card, was that the print on the same paper as that used in the latter case had been accidentally spoiled.

Brixton and Clapham Camera Club.

At the meeting of the above Club, held on Tuesday, the 20th inst., Mr. C. Goodwin Norton gave a demonstration on "Photography by Artificial Light." He advocated the use of five or six blow-through jets arranged in a cluster and enclosed in a box, in front of which a tissue or prepared calico screen should be stretched. The exposure averages from eight to twelve seconds and the results are very good. The average cost per sitter is about 3d. for the limes and compressed oxygen. Reflectors of some white material will be necessary in order to lighten the shadows a little. The light should be suspended from the ceiling of the room by a cord, and it should be about 6 feet from the ground. Better results are claimed for this light than from the magnesium flash-light. The electric light would, of course, be better, but it is beyond the reach of the majority of professional photographers at present. The whole cost of the outfit is only about £5 complete. Specimen plates taken with this light were passed round, and, at the conclusion of the demonstration, discussion took place.

Next meeting, July 4th, open night.

Birmingham Photographic Society.

Ordinary Meeting of the Society, held in the Large Room, Colonnade Hotel, June 20th.—Mr. F. S. Goode in the Chair.

About thirty members present.

Mr. Hendren then continued his lecture on "Christian Architecture in England." Mr. Hendren, in the course of his very interesting remarks, showed by diagrams the various forms of arches, pointed and round, and the evolution of one from the other; also the various kinds of decorations commonly in use both on arches and pillars. Several of our well-known cathedrals and other public buildings served to illustrate this or that style of work, a large number of photographs being shown. Many members asked the lecturer questions, which he kindly answered, and a profitable discussion followed.

Gosport Photographic Society.

On Tuesday Mr. S. Herbert Fry, of R. W. Thomas and Co., Limited, gave a highly successful demonstration on the "Sandell Plate." The lecturer explained the mode in which the plates were coated, and said that the great advantage of multiple films was the extended scale of correct representation. Some specimen prints from "Sandell" negatives showed that a good foreground could be obtained without spoiling the background. Mr. Fry said it was best to expose for the shadows and leave the high lights to take care of themselves. He recommended development with a weak solution to commence with in cases where the exposure is known to be more than normal. Two plates of a sitting-room, with the sun shining in the window, fulfilling all the conditions of a difficult exposure, were developed. In both instances the negatives were clear and good. Another plate exposed by a member yielded good results.

Mr. T. E. Williams, R.N., proposed a hearty vote of thanks to Mr. Fry for his able demonstration, and to Messrs. Thomas for deputing him to attend.

The Rev. E. Paske-Smith seconded, and the motion was carried with applause.

An attractive programme of excursions has been arranged by the committee, full particulars of which can be obtained of the hon. secretaries.

North Middlesex Photographic Society.

The above Society had a technical night on June 26th.

Mr. **Barnard** showed the results of his attempt to copy a daguerreotype, and appeared at last to be entirely successful.

Mr. **Smith** related a curious experience he had had at the outing to Cassiobury Park, of two dark spots on the focussing screen, which he could not account for; he exposed, however, and on developing, they came up black, and, consequently, print white; but, being in the sky-space, blocking out the sky hides them.

Mr. **Avery** was of opinion that light must have been somehow reflected through the lens forming the spots.

Mr. **Marchant** had been troubled and puzzled by a number of flies inside the camera, and suggested this as a solution. In the end everybody said it was curious, but no satisfactory explanation was forthcoming.

A long discussion on films and their defects took place. A large number of members had found insensitive spots. One had a film strip completely from the support on taking it out of the box.

Mr. **Matthews** said that in case of a celluloid film partly stripping it could be made to adhere by licking with the tongue.

Mr. **Gill** had found a great tendency of plates to frill badly lately, and inquired whether the temperature of the developer would be the cause. It was thought to be very probable. One member suggested that the fact of being coated during the hot weather might have prevented perfect adhesion to the glass.

Seven new members were elected.

The outings resulted as follows:—Kew, Mr. Beadle, first: Mr. Smith, second. St. Albans, Mr. Marchant, first; Mr. Smith, second. Cassiobury Park, Mr. Marchant, both first and second.

Hackney Photographic Society.

Ordinary Meeting, held Tuesday, June 20th.—Mr. W. **Fenton-Jones** in the Chair.

Members' work by the following was shown:—Mr. Roberts and Mr. Hudson, results of Barnet plates.

Mr. **Avent** recommended beginners to read "Photographic Mosaics."

Mr. **Carpenter** advised a soft light for portraiture.

Mr. **Nunn** had taken some indoors, with the blinds drawn.

The **Chairman** then sketched his method of taking portraits outside, which was to have a very large clothes-horse, and so make a sort of outdoor studio, placing a kind of blind over, to regulate the top light.

Mr. T. H. **Smith** showed some pictures he had taken on the Barnet plate by gaslight. One had five minutes and the other forty minutes. Both were under-exposed.

Mr. **Avent** had taken portraits using six Welsbach incandescent lights, and found that five or ten minutes would be about right exposure.

The **Chairman** then showed and explained a Wynne's exposure meter. It appeared to him to be a very good and cheap article, and he said he would try and report further on it.

Mr. **Penny** showed two negatives. One had been enlarged by the Cresco-Fylma method, and the other by using hydrochloric acid, 2 dr. to 40 oz. water. The result was precisely the same.

Owing to the unavoidable absence of Mr. Hensler, Mr. **Gosling** started a discussion on "Toning." He was in favour of plenty of gold, and the use of the sulpho-cyanide bath for P.O.P.

Mr. **Nunn** said he had obtained yellow tones when using borax.

Mr. **Barnes** used a lead toning-bath, but the colour was too slatey.

The **Chairman** said he had read that chloride of aluminium was recommended in place of alum to harden the gelatine in the prints: the great recommendation being that they could be the more readily handled without injury.

July Arrangements.—4th, open night; 8th, excursion to London Colney; 11th, Lantern Slide Reduction, A. G. Munn; 18th, Glycin and Metol, Messrs. Hauff; 25th, Exposure Meters and Tables, W. Fenton-Jones; 29th, excursion to Belvedere Park.

Leicester and Leicestershire Photographic Society.

The above Society had their first half-holiday excursion this season on Saturday, the 24th inst., to Barkby, a village about seven miles distant. The weather during the afternoon turned out most suitable for securing excellent pictures, with the exception that occasionally the wind was a little too strong.

The President (Mr. J. Porrett) acted as view-finder to the party, and soon discovered plenty of work for the cameras to do. The views selected included old farmsteads, rustic stepping-stones, snugly-thatched cottages, ivyclad and moss-crowned roofs, brooklets on whose rugged banks grazed the homely cow, and giant trees showing their gnarled and twisted roots, while their graceful branches and varied foliage threw such shadows on the waters beneath as made the eyes of the artist glisten and filled the heart of the photographer with joy. When all the plates were exposed, a move was made to the residence of F. W. Kemp, Esq., who had invited the President with his party to pay him a visit. Here a sumptuous tea was provided, to which everyone, to the number of twenty members and friends, did ample justice. After the inner man had been satisfied, an adjournment was made to the drawing-room, where Mrs. and Master G. Kemp, Mr. Porrett, jun., and Mr. Groves performed some excellent classical music. During the intervals, Mr. Dunmore and Mr. Johnson gave some amusing recitations and comic songs. At the close, a hearty vote of thanks was given to the host and hostess. In reply, Mr. **Kemp**, in a few well-chosen words, expressed the pleasure it gave him and Mrs. Kemp to be honoured by such a goodly company, and intimated that he hoped this would only be a prelude to many more similar meetings. The party then broke up, all regretting that time was so short, and the second red-letter day of this season's excursions had come to a close.

Ashton-under-Lyne Photographic Society.

This Society had a ramble to Monsal Dale, Ashford on the Water, and Bakewell, on Saturday, June 24th. They took train to Monsal Dale, and, under the leadership of Mr. J. T. Lees, they left the station, and after taking one or two views of a number of cows which were drinking near a foot-bridge on the River Wye, they followed the road and through a farmyard to the railway viaduct, where the river turns sharply to the right. From here to Ashford the camera was constantly at work, photographing waterfalls and picturesque dales and woods all the way. Several views were taken about the old marble-polishing works, where there is a very beautiful water-mill. It is well worth spending several plates upon. This is, without doubt, one of the most picturesque spots in all Derbyshire, which is saying a great deal.

On leaving the old mill the party were soon at Ashford, where, after taking several views of the old church and one or two sunset pictures, they visited the Devonshire Arms to refresh the inner man.

After tea the party were photographed as usual, and made the best of their way to Bakewell, after spending one of the finest photographing days of the season.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

11,796. Frank Sternberg, Hillside Cottage, Bushey, Herts, "An Improvement in Photography."—*June 15th*, 1893.

11,872. Charles Denton Abel, 28, Southampton Buildings, Chancery Lane, London, "Improvements in Photographic Developers" (Actien Gesellschaft für Anilin Fabrikation, Germany).—*June 16th*, 1893.

Specification Published.

9,926. *May 26th*, 1892—"Photography." A. Burchett, 28, Willoughby Road, Hampstead, London, N.W.

Two coloured glasses, yellow and green, are placed inside the tube of the lens, the green glass at the back of the front lens, with its surface parallel with the surface of the lens, and the yellow glass in front of the back lens also with its surface parallel to the surface of the lens. The lens is then attached to the camera and the objects focussed as usual. The sensitive plate having been placed in a dark slide and attached to the camera, the exposure is made in the usual way, and the plate afterwards developed.

By this invention colour is enabled to be photographed much more in its true relative value to black and white, and in photographing landscapes the operator is enabled by whatever exposure he gives to obtain a representation of whatever sky may be present, and if the exposure has been correct the sky will be in its true relative value in black and white to the landscape.

Instead of coloured glasses, similarly coloured transparent films may be used.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs Herbert, Haddan & Co.

* * *

Particulars and conditions of sale have been issued of the freehold business premises in Hatton Garden occupied by Messrs. Perken, Son, & Rayment. This valuable freehold will be sold by auction, at the Mart, Tokenhouse Yard, on Wednesday next, July 5th. At a time when investors have such good cause to be careful in their operations, it may be worth their while to turn their attention to the undoubted security of a London freehold in such a good position.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

H. C.—The spots are apparently due to hypo contamination, but it would obviously be impossible to prove this after the prints have been fixed and washed. The mischief has been done previous to, or in progress of, toning.

Oxford.—Squeegee to surface of ground glass and the matt surface will be as you wish.

Cygnet.—The addition is said to regulate action and to prevent the gas coming over with any violence. Its action, presumably, is strictly mechanical, not chemical.

J. M. A.—Under-exposure is clearly indicated by want of detail in your foreground shadows. You give the stop used: but why do you employ such a small one on such a subject? If you had doubled your aperture the fault would not have arisen, and for other reasons the general result would have been better.

P. T.—The graduated woven background material can be obtained of Messrs. Marion.

Signia, C.—(1) A guttapercha bottle is the best container for hydrofluoric acid, and it can be obtained both of wholesale chemists and indiarubber manufacturers. Failing this, coat an ordinary glass bottle, by means of heat, with paraffin wax. (2) There is no remedy that we know of.

Magnesium.—For such a number of lamps a good pair of bellows will be the best thing to employ, unless you have the means to compress air in a closed vessel and suddenly release it by turning a tap.

P. O. N.—We have used the appliance, and cannot recommend it either for good work or careful manufacture.

J. J.—You will find your questions answered very fully in a series of articles published in our columns last year, "Photography of the Unseen," by Mr. Andrew Pringle.

Jumbo.—The peeling of your distemper background is probably due to the employment of too much size, assisted by the recent dry weather.

K.—Amateur plate-makers are frequently troubled by their freshly-coated plates adhering to the setting slab by spilt emulsion. The best remedy is to stretch over the surface of the slab a few lengths of piano wire upon which the glass may rest. This must be carefully done, so that the plates still preserve a strictly level position.

M. O. P.—The Chinese white used is evidently partly or wholly made of white lead, and has turned black by sulphur fumes given off by gas consumption. Get a fresh sample from a good maker.

* * *

A modified form of automatic photographic machine seems to have "caught on" in America, but this is because the inventor has not attempted the impossible. The apparatus is worked by an assistant, who can raise or depress it to the required height. The sitters are really sitters—that is, chairs are provided for their accommodation, and a portable background is placed behind. The risk of having the face of a total stranger peering in ghostly fashion over one's shoulder is therefore done away with. The time of exposure is about six seconds in a fair light, and the finished picture can be delivered in about forty-five seconds. A New York paper gives reproductions of photographs thus taken.

PATENT OFFICE LIBRARY

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1818. JULY 7, 1893.

NOTES.

THE Photographic Convention meeting at Plymouth was on Monday formally opened by the Mayor, who gave the members a hearty welcome to the town. About one hundred and thirty members were present, including, we were glad to see, a larger number of ladies than have graced previous meetings of the Association. It was not expected that the present meeting would attract so many visitors as that held last year at Edinburgh, for the Convention has a goodly following up North; but it seems to equal, if not to exceed, in numbers the previous meeting at Bath. The President, Mr. George Mason, delivered the customary address, a full report of which will be found on another page.

AT Richmond, last week, Messrs. Morgan & Kidd showed us a very beautiful collotype picture which they had prepared as a memorial of the Royal Wedding. The medallion portraits of the bride and bridegroom are excellent, and they are set in a very elegant framework, with a plentiful supply of the orthodox cupids inseparable from these happy events.

LESS than a month ago the new municipal buildings of Richmond were opened, and Messrs. Byrne & Co. took several photographs of the ceremony, in which the Duke and Duchess of Teck and the Princess May took part. The chief hall, however suitable for municipal purposes, is evidently too dimly lighted for photography; hence it is that the exposure has been sufficiently long to detect movements of the persons present.

A CURIOUS effect of movement appears in these pictures which we do not remember to have seen before. Each person had evidently been provided with a programme of large size, and many of them have, during the taking of the pictures, unconsciously fidgetted with them, with the result that they appear to bear in their hands each a blurred shield. The effect is most pronounced in the picture which was taken when the Bishop was offering up prayer, for in this instance various members of the company have been constrained to cover their faces with the moving papers, reminding us of the little girl in *Punch* who asked her mamma why Mr. Smith always smelt his hat when he entered his pew in church.

MESSRS. DOLLOND, of Ludgate Hill, have recently introduced a new form of kaleidoscope, the invention of Mr. John Gorman, M.R.C.S. In this instrument the familiar bits of coloured glass are replaced by pieces of bent cardboard, &c., which reflect the light in a very curious manner, and produce a variety of symmetrical patterns. Such patterns could, from their absence of colour, be very easily photographed. The modified instrument is very ingenious, and well worthy of examination.

WE have received the "Statutes" of the International Union of Photography, which is a union between various societies, suggested at the Brussels Photographic Congress of 1891, and formally opened at Antwerp the following year. The President is M. J. Maës, and it is arranged that the headquarters of the Union shall for the present be at his residence (33, Rue Rembrandt, Antwerp). Captain Abney's name appears among the list of vice-presidents as representing Britain.

A CORRESPONDENT has kindly pointed out an error in the formula for a new negative varnish, which we quoted last week (p. 391) from an American journal. For "ounces" of borax read *drachms*.

We have received from Mr. W. Matthews, an esteemed contributor to many of our year-books, a pamphlet entitled "Sir Roger Tichborne—the Story of his Life." In this pamphlet, and in a leaflet which accompanies it, Mr. Matthews expresses the belief that the Claimant is in reality the lost nobleman he claims to be, and that the proof is to be found by comparing the old photographs of the young Sir Roger with those of the alleged Arthur Orton.

The evidence thus afforded would be stronger if the original negatives of the pictures were available for comparison. Minute measurements of paper prints are not to be relied upon, and spots and other markings are so common to them from a multitude of causes, that the following observation, quoted from the pamphlet in question, has really very little value attached to it :—"Finally, it is noteworthy, in respect of these portraits, that the face of the alleged personator and the face of the person he is presumed to have personated are alike pitted over their whole surface with vestiges—it may be of small-pox, or it may be of some more significant markings."

At the Birkbeck Institution, at the close of Mr. Hepworth's lecture on "Curiosities of Photography," on Wednesday of last week, the audience were successfully photographed by flash-light. Messrs. Marion's apparatus was employed, and a 15 by 12 negative was obtained.

The tropical weather of the last few weeks has converted the studio into a forcing-house. Fortunately, dry plates have got rid of the troubles which used to accompany collodion and the silver bath, but the heat remains. A simple and effective method to reduce the temperature is to stretch calico on a light frame the size of which can be regulated according to convenience, though the larger the better. This calico screen, saturated with water, and placed in front of an open window, has a magical effect in cooling the air. If the screen be kept wet, the temperature can be maintained at an endurable point even on the hottest day.

A curious story is current concerning the *Grand Prix*, the race which it was decided was won by a "short neck" by the French horse. As the horses were passing the post an instantaneous photograph was taken, and those who have seen the prints declare that the camera shows the English horse, Ravensbury, to have won by a good neck. One sporting writer, who is very decided in his opinion as to the result, says the evidence of the camera places the judge's verdict in a very peculiar light.

Messrs. Starley Brothers, of Coventry, the well-known makers of the "Psycho" cycles, have sent us a copy of their catalogue, in which the illustrations of complete machines and parts of machines consist wholly of "Meisenbach" process blocks. Exact representation of the originals is particularly essential where mechanical detail is in question, and these pictures fulfil their purpose admirably.

A lady's paper which has been offering prizes for the best specimens of amateur photography is disappointed at the result, and says it is "especially surprised at the want of good work among the photographs." But is it so surprising? We are inclined to think that the quantity of really excellent work turned out by the vast army of amateurs is lamentably small—infinitesimal it might almost be said—in proportion to the number of workers. The "fatal facility" of present-day photography does not tend to advancement. In the early days only the real enthusiasts took up the art and worked at it in earnest. Amateur photography to-day consists largely of "potting" anything which comes in one's way, without the slightest reference to artistic effect. Indeed, the camera is used very much as one, in an idle spirit, lifts an opera-glass to the eye.

The attempt in the *Studio* to extract the opinion of well-known painters on photography has furnished excellent copy for the art critic of society journals. When this gentleman gets on the trail of photography his air of profound wisdom is astounding. Photography fails, says one of these authorities obligingly, because the "high lights are often transferred into subdued ones and dark ones into bright, owing to the fact that the photographic plate is partially insensible to yellow, while violet and blue are strongly brought out." Well, we are always learning something.

An interesting account of the method by which the realistic effect of the flight of the Walkyries through the sky in Wagner's opera is produced at the Paris Grand Opera appears in the current number of *La Nature*. Three optical lanterns are placed on the stage, their presence being concealed by the scenery. The lanterns are provided with slides on which are painted representations of clouds, and the images of these clouds are thrown upon a transparent gauze screen. On a platform behind this screen the horses and their riders, illuminated by the electric light, travel by a simple mechanical contrivance, and the arrangements are complete. The use of three lanterns is to prevent any sharp edge by the overlapping of the cloud pictures.

PHOTOGRAPHIC CONVENTION.

MEETING AT PLYMOUTH THIS WEEK.

THE PRESIDENT'S ADDRESS.

At the Bath Photographic Convention meeting, Mr. Traill Taylor said that, up to that point in the history of the Convention, the presidential chair had been filled consecutively by representatives of the following departments of the art-science—viz., the literary, the scientific, the chemical, the professional; and last year the chair was most ably filled by Mr. Davison, who might, with every confidence, be termed the artistic. And now come we this year to what is known as the commercial element, for you all know that the commerce of photography is what fills up the most of my time and study, and in this phase of the art-science I am most at home. The commerce of photography may seem at first sight the most commonplace and least attractive of all its various branches; but this is not so, for more or less it embraces all, and it will be found to be the most essential element in the whole—it is the leaven that leaveneth the whole lump. Only in so far as any profession is found to be for the general good, so is it essential, and by its claims proving good or bad so will it succeed or fail. All our introductions, experiments, discoveries, and inventions—and their name is legion—are but means to an end, and the end is commercial.

I fancy I can hear the enthusiast exclaim, "Oh, no, that is not so. The glory of discovery is the reward. The love of the work is ample repayment." That's all very well, and I believe that he who says so has perfect confidence in his statement. Yet, "What is it worth?" is really the point to be solved on the introduction of any new thing. It may seem a very poor platform on which to place the work of the enthusiast and the investigator, embracing as it does years of experiment and labour — that on which is marked "What is it worth?"—but I fear that with but few exceptions it comes down to that at last.

There are exceptions to every rule, and all of us have met the enthusiast who, for the love of the thing, only goes on working untiringly in one groove or another, using both time and money for the advancement of the art-science, anticipating no profit from his labour, the pleasure of overcoming difficulties and the joy of "finding out" being his end and aim. But, even in such a case, what has been discovered, if to spread and flow, it must come to the river of commerce. If one happen to have income enough to render his position independent of any thought of repayment, he may sneer at the position herein taken up; but, nevertheless, it is a fact that commerce is the stream into which all the tributaries flow. Looking back to the beginning, we find Niepce straying along the country roads trying to gather stones suitable for his photo-lithographic experiments. His correspondence with the Paris lithographer and his partnership with Daguerre all have a commercial leaning. We also find that his brother, who, in his own time, was as great a scientific enthusiast as himself, determines to leave his home, and resolves to come to England, feeling sure that it was a better field for the success of his inventions. And have we not the notable cases of Daguerre and of Mr. Fox Talbot protecting their inventions? What for? For a profit, of course!

Whether we agree regarding the position I take up, that the end and aim of all our work tends to commerce, I have no doubt we will be at one on the various items that I intend to touch upon to-night, for they are in their very essence the work of the business. And, first, I would make a few remarks upon the Convention itself and its membership.

Last year was the most successful of all our meetings; but the Convention meetings, since the very start, whether large or small, have ever shown great vitality. Still, the professional has given it neither the attention nor the support that I feel it was his duty to do, and that the institution deserves.

The greater part of the success of our meetings is due to the support and enthusiasm of the amateur element, and why should this be? Surely there ought to be some equality of representation. The profession, as a body, is large enough and influential enough to at least treble its present representation; but I fear that it is the spirit that lacks energy and enterprise. At first there was a considerable outcry about the time the meeting was held being unsuitable for many in the profession. To meet this objection the date has been changed two or three times I think; this with some little advantage, perhaps, but not much.

Taking professional photographers collectively, I feel that if they tried they could make this meeting for themselves the most pleasant and profitable outing of the year. Every one that has been with us knows that this is an honest statement, and if they would only gather round in numbers, they would find it a gain both in health and business. The lines on which our Convention is run commend themselves, and are better, in my opinion, than those adopted by our American friends. To a great extent the American Convention is a dealers' show, a good enough thing in its way; but the platform upon which we meet is more independent, and the principal business of our gathering is educational and social, the dealers' part being a mere detail, and never interfering with the more salient points for which we meet.

The professional who joins us in this week's outing, by personal contact and general interchange of ideas and experiences alone, is bound to learn more than he would in a hundred times the time spent in less congenial and less favourable circumstances, so that, even as a paying speculation, I look upon the Convention as a profitable investment to any member with his eyes and his ears open. Hence I would that the professionals bestir themselves, and make a fairly representative turn out. If they but did this, the institution would be, beyond doubt, an assured success for all the coming years, a centre where the representatives of all the various societies might meet in a broad union once a year.

The National Association of Professional Photographers should find the times and places of the Convention a fitting opportunity for their meetings. There they could be in numbers, and could easily arrange to hold their own special meetings during the week to suit themselves, without in any way interfering with the general arrangements of the Convention. All being in one town at one time, more meetings could be held, larger audiences could be got, and they would be far more likely to command attendance than where they have to travel, in many cases, long distances for single meetings.

Last year Messrs. Fall, Whitlock, and O'Neill made a move in this direction, and I have no doubt that their endeavours then tended to the growth and influence of the Society. This Association, worked on broad lines, should be a power for good to the whole profession ; there are so many questions of importance, such as insurance, copyright, holidays, legal defence, prices, and many other subjects that are of great commercial interest to the whole profession alike.

One thing might here be noted, that the obtaining of a closer union between the individual members of the profession is what should be aimed at if success is to be the result in this as well as all other like institutions ; and this is the greatest difficulty to be overcome, for the photographer does not take so kindly to unity as most other professions do.

Here I would say a few words on behalf of the Photographic Benevolent Association. This Society should have much more consideration and sympathy from the photographic worker. On investigation I find that most of the funds—and the greater proportion of interest and work is undertaken by the kindly well-wisher, and that don't-care-about-it apathy still belongs to the working photographer. As I have elsewhere said, every employé in the photographic trade in the United Kingdom holds a special interest in this Society, and half-a-crown a year is all that is necessary to be paid up by any one of them to place themselves in the position of membership, which, in cases of need, gives them the advantage of becoming participators in the funds of the Society. About a halfpenny per week ! Just think of it ; and for this fraction, if paid by the body of employers, the income of the Society would be raised to £400 a year, and if the employers also joined, the return shown could not be less than £500, at the very minimum, of our outlay. Look at the power for good this would place in the hands of the executive. If every employer would interest himself to induce his employés so to assist themselves, the feat would be accomplished, for they could not fail to be successful, and thus the many rivulets would swell the greater river.

For the promotion of union in the profession, I think that the institution of the "Central Photographic Club" is no mean factor. It opens up an avenue of social intercourse and information, and anything of such a nature must help to advance a man in his business. It gives him the opportunity of being up to date, and that is one of the essentials of successful trading.

A place of meeting where, at all times, the country member comes in contact with his compatriots in the city, and where he at once gets into the centre of that which most interests him—and the friends from the provinces will also keep the city members acquainted with what is going on in the country districts—and these advantages are to be obtained at a merely nominal outlay. This institution should have the fullest support of the profession.

The Affiliation scheme of the Society of Great Britain is also a march in photographic progress that should help to draw photographic societies together, and, if taken up with a will, must result in an intercourse that is bound to be beneficial to all, the interchange of papers and slides alone being of great moment and importance, especially where societies are too small or too young to be able to produce new subjects or original matter without help from wider fields.

The progress of the year shows steady advancement ; nothing startlingly new, but there's not a week passes without the introduction of some ingenious device or discovery which tends to save labour or to perfect results.

It has been stated that there are more patents taken out in connection with photography than in any other trade of like dimensions, and, looking at the continuous stream of applications for protection, it is easy to believe.

Printing-out papers is one phase of photographic work that has made a marked advance in the currency of the year. Gelatino-chloride paper has come into almost universal use, the beauty of the finished results secured by the use of this paper tending greatly to its growing popularity. Collodio-chloride paper has also grown considerably in demand, as it is considered by many to allow of a greater variety of tone, and also that it is more permanent than the gelatino-chloride, but to prove the latter requires the test of time. The new cold-bath process paper introduced by the Platinotype Company has also made a rapid stride to the front, and is now almost universally adopted. The advantage of local development by its use being rendered sure and easy was a great recommendation to its success, and, where it has been fairly tested, the hot bath has been laid aside for this more perfect process.

Stereoscopic photography, which, like the sleeping beauty, has been lying dormant for so many years, lives and breathes again. A great advance has been made, and considerable work has been done in this department during this last year, and it still goes on increasing. A big future may be anticipated for it.

The hand-camera competition still runs on without impediment. The originality and ingenuity displayed and expended on the construction of these little instruments is perfectly astonishing, and the excessive number of forms placed upon the market—each professing to be the best—is marvellous. By their results ye shall know them. The work produced by them is to be found broadcast in all sorts and conditions of illustrated papers, photographic and otherwise, ranging from very bad impressions up to charming productions. So much in favour has the hand camera become, that I have no doubt but that the larger proportion of the apparatus brought for use by the members of the Convention will be found of this description. If the advances during the year have not been made by leaps and bounds, they are at least sure.

In lenses, the Zeiss, the Dallmeyer Tele-photo, and the Ross Concentric are increasing in demand. Isochromatic plates are taking a firmer hold, and the Sandell has been adopted by many.

The journalism devoted to the profession seems to be out of all proportion to the extent of the trade they cater for; but, I suppose, time will try them, and the weakest will go to the wall.

And now I will leave the various members, in their various classes, during the Convention, to thrash out their various themes, one by one, scientific or chemical, each in his department, be it development, speed, light, colour, or optics, each of them needing its own specialists to do it justice.

I hope you will all spend a happy and enjoyable week.

WELFORD'S RAPID TONING BATH FOR GELATINO-CHLORIDE PAPER.

BY WALTER D. WELFORD.

LAST year I had the pleasure of bringing before your notice an exceedingly rapid and simple method of toning gelatino-chloride prints, by using a much more concentrated solution than usual. At the time I was seeking rapidity of action merely, and, as the means necessary proved to be of the utmost simplicity, that point was added also. Upon the question of the resulting tone, I also claimed an approach to platinotype; and, though my results then fully bore out the claim, I think it would be wiser now to describe the tone as of a neutral nature, neither too warm nor too cold, but ranging between the warmth of a silver print and the coldness of a platinum or bromide.

But the matter of tone altogether is so much a matter of taste, that it would be better to merely put the one obtained by my experiments as the result, without claiming anything for it. Complaints were made that the workers could not get warm, brown, and red tones with it, which caused me to wax wroth at the idiots who used a bath specially devised for cold tones, with the idea of getting warm, and then thought the bath no use in consequence. Therefore, for the present, I claim the following points as the features of my method of toning :—

(1) Great speed of action; (2) absolute simplicity; (3) no trouble to work.

The idea has often occurred to me that we are sometimes too hasty in accusing a man of being old-fashioned and stick-in-the-mud, because he prefers old methods and won't change, as we, perhaps, have done, to newer ones. The point is often overlooked that the new method, however excellent in many directions, may yet lack any improvement in the particular one appreciated by the older worker.

The above bath is an illustration, and one no doubt applicable to many workers. If rapid work and simplicity be to them no attraction, then it cannot be expected that they will forsake an old friend which perchance gives them a tone they like better.

To make a personal application of this thought, I should hardly be attracted by any toning bath that was no improvement upon mine as regards speed and simplicity. Our pet ideas govern our thoughts and wishes to a greater degree than we imagine or would be willing to allow. It therefore matters but little how vast the improvement be; if it is not in our own direction, we perhaps prefer to stick in the old groove.

All my experiments have been made with the direct object of obtaining speed in toning. This I have decidedly accomplished, as I shall prove to you later on. But only those who have left the beaten track of toning baths for that of experiment know the great variety of tones obtainable—or, rather, obtained—for they are not always obtainable; at least, it is difficult to ensure the same tone again, and I have settled down into the conviction that batches of paper must vary considerably. With exactly the same bath, and under precisely similar conditions, different tones are obtained. I have practically tested this by using four pieces six months, four months, and two months old, and a piece bought the day before. These, when toned *together* in the same bath, have not resulted in the same tone. It may be that some gradual chemical action takes place in the emulsion upon the paper in the course of storage. I am convinced that it is not atmospheric influence at all, because I have carefully stored pieces nine months, and then exposed to air for a week in a dark corner pieces of absolutely new paper. The result was that the new paper did show traces of the treatment, but the old did not. It is, therefore, either a difference in the emulsion or a chemical action during storage.

The range of tones obtainable upon gelatino-chloride paper is simply marvellous. The fact strikes the experimenter most powerfully. Upon many occasions the results have caused me to use language which was quite warranted by the exigencies of the case, and was good English, but quite unfit for publication. The density of the negative, its colour, the length of time printing, and even the degree of washing before toning, all had a hand in the tone. However, as tone is to me at present a secondary matter, we will dip at once into actual experiment.

I fully intended last year, during the autumn, making a complete attack upon the question of rapid toning, but business did not permit, nor, for various reasons, have I been able to do much till lately. Even now, living in chambers, the opportunities and conveniences of work are most limited. Still I have convinced myself of several points. When I first introduced the bath, the extremely rapid action seemed likely to be a boon; but, when scant attention to it followed, it not being even thought worthy of insertion in the annals of progress published at the end of the year, it struck me that perhaps there wasn't very much in it, after all, and for months, though using it exclusively myself, the subject did not bother my head. Recently, however, occasion arose, after three or four months' complete absence from any printing work at all that batches of 100 to 150 prints every night were necessary. The same bath was used, and the fact that it was a good thing came most forcibly to my mind. I determined to experiment further, and the present paper is the result.

The experiments were all made with two main objects —rapidity of toning and finality of result, leaving the resulting tone to be the unknown factor. The principles laid down were :—

1. Each print must tone completely in two minutes as a maximum.

2. There must be a definite tone (finality) which no reasonable amount of after-immersion can alter.

The reason of the first is obvious. By the second, I wanted to get the power of what may be termed "careless work," that is, that, if the print be unevenly toned, it can be put right afterwards. As a matter of fact, my first point in starting a batch is to see that they will readily tone unequally.

Two kinds of paper, "Solio and P.O.P.," the former in white and pink tints only—owing to inability to obtain the mauve—and the latter in all three. Prints from the same negative were toned in the four following baths :—

BICARBONATE BATH.

Gold	1 grain.
Bicarbonate of soda	25 grains.
Water	1½ ounce.

ACETATE BATH.

Gold	1 grain.
Acetate soda	20 grains.
Water	1½ ounce.

PHOSPHATE BATH.

Gold	1 grain.
Phosphate soda	25 grains.
Water	1½ ounce.

BORAX BATH.

Gold chloride	1 grain.
Borax	40 grains.
Water	1½ ounce.

All these baths worked rapidly enough, but the acetate one requires mixing at least an hour before use, whereas the others can be made up immediately.

The first result arrived at was that the tint of the paper governed the tone more than any differences in the bath. I will detail the actual results :—

Pink paper (P.O.P.)	No difference in tone at all.
White " "	The acetate bath gave a slightly redder tone ; the rest, alike.
Mauve " "	No difference.
Pink " (Solio)	No difference.
White " "	Bicarbonate, grey black ; phosphate, a warmer tint ; borax, warmer still ; and acetate, quite a purplish pink.

Upon the whole, the best results were obtained upon white Solio, mauve P.O.P., and white P.O.P. The latter, with the bicarbonate and borax baths, gives a tone very closely approaching that often obtained in platinum toning—viz., a very warm sepia. As a general rule, white paper should always be used if a grey black tone be desired.

Leaving, now, the question of tone altogether, to deal with rapidity of action, there is not much to choose between bicarbonate, phosphate, and acetate. But I certainly prefer the bicarbonate bath as the best of these four at all events. Mixtures I did not try, as I was aiming at simplicity. The less mixtures in photographic formulæ the better, is my maxim ; and, certainly, in toning baths for gelatino-chloride papers we can do with a little more simplicity. Some of the concoctions put forward are a credit to the ingenuity of the chemist—viz., the number of ingredients possible to be put in without injury. They are simply preposterous.

You will see, later on, that my assertions as to the speed of toning will be borne out by the demonstration. I noted down the other night the time occupied by a batch. A whole-plate tray was used, and the following bath :—

Bicarbonate of soda	1½ drachms.
Chloride of gold	4 grains.
Water	6 ounces.

The prints were merely laid in the tray and kept under the solution by touching with the fingers ; the tray itself was never moved. Until the last few prints it took all my time to get them in and out fast enough. Even then I lost time by having to light my pipe.

Total toned	105 quarter plates.
Full time	28 minutes.
First print	23 seconds.
Last print	70 "

One that occupied about forty seconds to tone was left for nearly an hour in the bath, and the resulting tone was no different. If we say fifty minutes, that means a period of time which may be roughly stated as twenty-five to one. The print was certainly flattened or bleached a little, but the tone was not different. This proves that my claim to a finality of tone is quite within reason.

By this means the power of what I have termed "careless" toning is acquired. A print can be half toned, the other half not touching the solution at all, laid aside for a time, and then finished. There will be no mark apparent. Or spots and streaks can be dealt with in the same way.

Of course, I in no way advocate such treatment, nor that prints should be toned for fifty minutes when forty seconds will suffice. These are merely extreme experiments, but they serve to show how easy this method of work renders the toning of gelatino-chloride paper, which it must be admitted in some toning baths is certainly not the case.

There is one point worth reference, which is that the actual amount of bicarbonate of soda in the bath is not, within limits of course, a matter of much importance. At least experiments with three-quarter drachm to two and a half drachm, the gold and water remaining the same, have not produced any different results. The only thing I can fancy to have noticed is that the more bicarbonate the slower the toning and the greater tendency towards warmth of tone. But one and a half drachms is a fair workable proportion.

The mere relation of the advantages of the bath impresses no one. Every one fails to grasp its advantages to a considerable extent; but, when shown it in actual work, it is altogether different. For that reason I shall proceed to demonstrate it before you to-night, and in doing so will work completely in my usual fashion.

I claim for the bath that it is the most rapid in action and most simple in working of any one ever introduced, and the resulting tone is to me and to many others a pleasing one. — *London and Provincial Photographic Association.*

TO CLEAR DISCOLOURED NEGATIVES.

BY M. E. GARBE.

FOR a long time we were ignorant of the cause of the yellow fog, so annoying to amateurs, especially when it attains an intensity injurious to the printing, as, in fact, when it is weak it is often more useful than objectionable. To-day we are about fixed concerning it; it is certainly due to a change of the gelatine during the manufacture of the emulsion. Under the action of the alkalies, due to the pyro-gallic acid, eikonogen and hydroquinone, it takes this colour at a more or less intense degree. In fact, this trouble never occurs with the acid developers, such as the ferrous-oxalate; it is never produced with collodion, whatever the developer used. We may remark that the yellow fog is especially produced on negatives lacking exposure, which is easily explained, since we are forced to cause the developer to act for a longer time. Numerous methods have been proposed for destroying it. We will divide them into two classes:—First, those which consist in adding to the fixing bath a bleaching agent; second, those which consist in removing the colour of the negative after the fixing. For the first we are advised either to acidify the hyposulphite bath with an organic acid, citric, tartaric, &c.: or with bisulphite of soda; or to add alum, or again, to plunge the negative before fixing either in an acid bath or in an alum bath. These two methods are open to serious objection. The acid bath causes the detachment of the gelatine; the alum bath often produces on the gelatine a deposit of sulphur which is difficult to get rid of. The following formula, which is but a combination of these two methods, without their objectionable features, has always given excellent results. We make the following mixture:—125 parts of a saturated solution of sulphite of soda; 10 parts of hydrochloric acid; 125 parts of a saturated solution of alum. After developing and washing the negative we allow it to remain two or three minutes in this bath, and, without washing, we afterwards place it in a solution of hyposulphite containing 1 part of hypo to 3 or 4 parts of water. By this method we not only avoid the veiling or fogging of the negative, but the film is hardened and the negatives are of irreproachable purity. Whatever the means employed, it is certainly to the sulphurous acid in the *nascent state*, which is produced in the hyposulphite bath, that is due the bleaching of the yellow gelatine. For the second method, that which consists in the bleaching of the negative *after fixing*, numerous formulæ have been proposed. Some consist in the use of acidulated perchloride of iron, exposure to light, ulterior development with diluted developer; others in the use of bromine, of sulphate of iron combined with other substances.

But all these methods, however efficacious, require long manipulations. We will now point out a process as sure as it is simple. We prepare the following mixture:—Glycerine and water, equal parts, in which has been dissolved, cold, hyposulphite of soda to saturation (40 to 50 for 100). This mixture is spread with a brush over the yellow negative, then the plate is left on a plane surface protected from heat and dust. According to the intensity of the coloration of the negative, the yellow tint invariably disappears in a longer or shorter time, which may vary from one to twenty-four hours. The negative is afterward washed in the ordinary manner. Here again it is the *nascent sulphurous* acid, which acts on account of the oxidation of the hyposulphite coming in contact with the air. This is very evident from the fact that this same yellow negative, abandoned in a hyposulphite bath, does not lose its colour, because the action of the air does not exist at the surface of the negative.

The method given above has already been indicated, but with a solution of hyposulphite in plain water, and it happened that the too-rapid evaporation of the water gave to the surface of the gelatine incrustations of hyposulphite; the glycerine is to increase the proportion of dissolved hyposulphite and to prevent crystallisation, even after a very long time. We have cleared by this process negatives that were so yellow that it was hardly possible to see the image, and which had been dry for more than two years.—*Photo-Gazette.*

* * *

FROM Messrs. Fuerst Brothers we have received the following note with regard to the development of silver bromide paper with Metol-Hauff:—For bromide paper the normal metol developer requires much less exposure than ferrous oxalate. The best plan is to use the metol-potash-carbonate-developer in concentrated form. The developer should be kept up to strength, and exposure made to suit that strength, so as to obtain results which cannot be distinguished from results by ferrous oxalate. A little bromide solution (1 : 10), say ½ to 1 gr. per oz. of developer should be used, which allows more latitude of exposure than ferrous oxalate. If these instructions be carried out, the best tones will be obtained. If the developer as a whole is much diluted, or if the alkali is much reduced in proportion, or if too much bromide be added, the tones will be more grey and less black than is usually desired. When soft greyish prints are required, as for after-toning or intensification, the plan is to dilute the developer. The process of development is speedy, and there will never result any discoloration of any kind, even if the prints are kept long in the developer, as when a large quantity of bromide has been added. The gain of time in exposure and development for enlarging is considerable, and will commend itself to all who enlarge on this paper. No clearing bath is needed; the prints are extremely amenable to the process of toning after fixing.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JULY 7, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. VII.—A Word for Ourselves.

ONE of the devices of the ingenious journalist is to set up some desperate villainy so as to give himself an opportunity of saying he is never, never guilty of such atrocity; for instance, such contemptible deviation from rectitude as having any knowledge of art, or any such shameless lunacy.

In our own little world a certain writer is often glorying that he is not as others are, and that he does not sneer at science, as, indeed, why should he? He does this so frequently that those who did not know the genial writer and his snap-shots would scarcely help feeling that the art-grapes were sour, or that some other occult reasons led to such persistent declamations against a home-made bogie.

It is very worrying to a constant reader of nearly all the photographic papers not to be able to find any particular subject or article; but I never remember to have met with any attack on *real* science. For my own part, although I cannot forbear an occasional smile at the developer modifiers and the most-recent-invention faddists, and although I advocate a division between science and art in photography as in kindred pursuits, I have always expressed true reverence for science, and it is only a superficial or interested reader who would think otherwise. Even my friend, who thinks it well to protest against the art-photographer, who seems to be going ahead too fast for him, cannot help himself protesting against the extraordinary craving after new formulæ. He even says, "Upon baths for chloride papers, and pyro developers, the changes are so constantly being rung that some of us are weary." Bravo! we welcome the convert. It has taken him rather longer than the art writers to get weary of sham scientific faddists—that is all. He has arrived at the conviction to which we must all come in time, and at which the art writers arrived long ago. Now, perhaps, we shall get on a bit, and put some of these formulæ, or a fractional part of them, to the use for which they were not all intended. Ninety-nine out of a hundred could only have been meant to fill vacant columns, or satisfy the amiable ambition to read papers. The writer I quote once more rejoices me again by imploring, "Cannot we have a little simplicity somewhere?" Certainly! and thank you for mentioning it, Mr. Welford! that is precisely what we ask for. Simplicity is what we are always preaching. A simple camera without exasperating ingenuity, a bought plate (they are all good), an ordinary pyro developer, without even the usual but unnecessary sulphite, some hypo, and there you are provided, as far as may be required, for any possible negative necessary for artistic purposes. We want you to clear your mind of the chemical pedantries and frivolities, to think less of how to complicate material, and more of how to put it to the best use. We would even like to see the making of photographs recognised as one of the objects of a photographic society.

It is the belief of many simple cyclists that the mystery of record-breaking is in the machine as much as in the man. It appears that a similar delusion possesses the mechanical and chemical photographer. He is always looking for a camera and developer that will give him pictures; but he must find in the end that nothing machine-made can be an adequate equivalent for happy thoughts and artistic ideas, and these can only be acquired by a very different course of study from those to which he devotes himself.

The complicated modern camera has many sins to answer for. I will digress into a little tale of a new camera that may turn the laugh against myself. My old but very simple camera was getting too heavy for me, and being beguiled by the lightness of a modern one I bought it. It weighed just nothing at all, and had every necessary and unnecessary motion. It would do everything except enable the artist's hand to obey his brain without useless delay. I gave myself several severe drillings in its use, and learnt nearly all the ingenious tricks, and then determined to inaugurate the new purchase with a picture. I had often seen a large flock of sheep surrounding a picturesque pool on the common. I would have a grand picture of a hundred or more sheep and lambs all drinking to the success of the new camera in the early morning. I arranged with the shepherd over night to keep the sheep in the pens, at some distance from the pool, until I came. The next morning early I signalled him to let out the sheep, and proceeded to set up my camera. I had plenty of time, as I thought, and to spare. Everything went well until I came to placing the front of the bellows, and that went awkwardly and caused delay. There was now only the lens to fix, and the thirsty sheep were racing up the common to the well-remembered pool. I could not get the thread of the lens screw to catch. Instantly there was the most delightful picture I ever saw before me. The sheep did all that could be desired, and I couldn't fix that lens! When it was fixed and ready for action the sheep had dispersed, and the chance of a really fine picture was lost; and there will be no further opportunity this year, for the sheep were sheared next day. Now with my old camera it was not necessary to remove the lens every time a move was made, and, as a matter of fact, it was always kept ready in its place. Well, I did not quite fail that morning as, possibly, may be seen in the Photographic Salon next October—if not rejected; but I did not get the picture I intended, as I should certainly have done with the old camera.

I have often felt that it was a pity the first cameras and photographic lenses were made by makers of telescopes and microscopes who had been bred up to think so much of steadiness and fineness of workmanship. The fine thread suitable for a microscopic objective is a nuisance in a photographic lens. Something more in the nature of a bayonet joint would be more suitable and convenient.

Let us resume. My business in writing, as it is that of some others, is to advocate the production of pictorial effect by photographic means, and, in work, to show, however feebly, that it can be done. During many years' experience I have come to the conclusion that all but an infinitesimal portion of what is discussed and written on the techniques of photography is useless to a pictorial end, and, being useless, is positively harmful by distracting the attention of the would-be artist, and, indeed, in a great many cases turning away his attention altogether. I am not against all progress on the technical side. Once in a decade something really useful turns up, and these discoveries the pictorial photographer adopts with gratitude, whether it is the result of pure science or the extraordinary good fortune of the unscientific experimenter. For example, the introduction of quick gelatine plates in 1880, and the general use of matt paper about 1890. These are epoch-makers, and I would willingly attribute both of these improvements to pure science, but if I did I should expect the cock to crow at me as he did to Peter. Of the hundreds of developers which have absorbed the attention, wasted the time, addled the brains, and shortened the lives of those who have meddled with them, not one is equal in all-round value to the first suggested for use with dry plates.

"The pushing forward of *pictures* as the sole end and aim of photography" (I again quote my friend) of which a few of us are accused, is quite true as far as we are concerned, but we are only a few, and only preach to those whom it may concern. If others find pleasure or profit in reading or writing papers on subjects that have, as we think, little practical importance, we don't want to prevent them, although we mildly remonstrate against nothing else being tolerated. Readers of papers may still do an interesting and possibly useful work in measuring pinholes which they never use, and the speed of shutters of which they never press the button; in helping detectives in their absorbing occupation; in the discussion of standards about which no two bodies will ever agree; in giving demonstrations of old and obsolete processes; and in denying the art in others which they do not find in themselves. The difficulty must be to find audiences, and I hear that the soothing influence of tobacco is found increasingly useful in keeping together attentive listeners.

Those who practise pictorial photography are, perhaps, slow in adopting the goods the scientific gods—and accidents—provide. They may act too much on the cautious maxim, "When a new process comes out, use an old one," but they cannot be accused of any lukewarmness in their pursuit, or deviation from their straight course; and they only turn, as the proverbial worm turns, when trodden on, and their forbearance is such that they have not a word to say against the hand-camera.

Am I making an ample apology for our existence, or putting in an abject plea for forgiveness? Not a bit of it. I speak for others as well as myself. We may be modest, unassuming, and retiring, but we are proud of the improvement we have made in the aspect of exhibitions during the last eight or ten years. There are now in every exhibition at least some few veritable pictures which attract attention for themselves alone, without any obtrusive display of mechanical technique. It is now possible to say, "What a picture!" without the first thought being, "Is it taken direct?" "How sharp!" "Is it an enlargement?" "It ought to be in the enlargement class!" "What developer?" and letting the one impression that remained on the mind be that Blank's photograph is a 15 by 12, an enlargement developed with either Amidol-Hauff or Metol-Hauff, and not being able to attend to anything else but eating and drinking—but not sleeping—until you have found out which, and think you have captured the artist's secret.

It is true we are being guilty of trying to push our small department further, and will endeavour to show in the Photographic Salon in October what progress has been made. A project for carrying the art of photography still further surely may be expected to enlist the sympathy of photographic editors. The next generation will scarcely believe, on the contrary, that for our presumption some of our editors roundly abuse us, others sneer, the more amiable joke (I wish they did it better); all, however, fortunately advertise us. It must be very irritating to anyone who edits a paper connected with an art like ours to find that art grow beyond his knowledge. It is troublesome to the hen when the young ducks she has hatched want to swim, and it is not easy for a man who has occupied himself all his life with figures, symbols, optics, and chemistry to follow and understand that art in its higher phases. That is what in one or two cases appears to be the matter.

PHOTOGRAPHY IN FRANCE.

BY LEON VIDAL.

OPTICAL ADVANCES IN PHOTOGRAPHY—IMPRESSION PRODUCED BY THE DOUBTS EXPRESSED REGARDING MONS. LIPPMANN'S DISCOVERY—OXALATE OF DIAMIDOPHENOL—DRY RAPID COLLODION—RAPID PROCESS OF TRANSFORMATION OF A PHOTOGRAPHIC NEGATIVE INTO A TYPOGRAPHIC STEREOTYPE—THE SIMULTANEOUS PRINTING OF THE COLLOGRAPHIC IMAGE AND PRINTER'S TYPE—THIN PLATES AND COLOURS RESULTING FROM THEM IN CONNECTION WITH PHOTOGRAPHY—APPOSITE QUOTATIONS DATING FROM 1856—PHOTOGRAPHIC LIBRARY—TELEPHOTO LENS OF MONS. HOUDAILLE.

THE optical advances made by Zeiss, of Jéna, have stimulated the emulation of other opticians, and now we have the Maison Goertz, of Berlin, announcing still greater novelties.

We do not guarantee the truth of these assertions, neither do we venture to doubt the good faith of M. Goertz. All that we undertake to do is to record facts and indications worthy of attention, feeling that we can safely leave the issue in the hands of the public. At the time of his communication to the French Society of Photography, M. Goertz had to encounter much opposition, but, as this was mainly based on industrial grounds, the President remarked that it was a question of law with which the Society had nothing to do.

The readers of the PHOTOGRAPHIC NEWS have recently seen that doubts have arisen with regard to the remarkable discovery of M. Lippmann.

It is not surprising that such astonishing results as those which have been presented to them should be received with some degree of incredulity. It is, however, much to be regretted that persons, before pouring out their denunciations through the Press, should not have taken the preliminary precaution of making themselves acquainted with the subject in hand.

It is certainly not merely by saying that a thing is not so that a fact can be disproved, yet it is by such marks of incredulity that people are influenced. It is, however, inevitable that there should be a certain amount of hesitation before accepting such a discovery as that which now occupies our attention, containing, as it does, so much that is unexpected, novel, and marvellous.

We have again examined the remarkable results obtained by Messrs. Lumière by the aid of the interference method. We have them under our eyes as we write these lines, and we can once more testify to the truth of all that has been said with regard to them. The effect is so charming that we can scarcely take our eyes off them, and we can have no greater pleasure than to show them to everybody and to carry them about with us, that all may have an opportunity of sharing in the admiration which they excite.

We know not what new discoveries may be made sooner or later by which the method and its results may be simplified, but there is no doubt that we now possess a means by which the colours of Nature may be reproduced and fixed in a permanent manner. The best evidence of this is the sight of the proofs themselves, which would be more convincing to the sceptical than any amount of verbal description.

Messrs. Lumière continue their very interesting study of the various compounds sensitive to light which may be employed in photography. They now present a note upon oxalate of diamidophenol, which product, they say, will allow of the development of a great number of negatives in the same bath.

The question of preparing a collodion emulsion, which shall be as rapid as gelatine, crops up from time to time, but, up till now, the results obtained do not correspond with those promised.

New attempts are being made in France to obtain the rapid transformation of a photographic negative into a typographic block. The means employed consists in the formation on the surface of the negative of reliefs and grains moulded by galvanic action. The idea is certainly not new, and it remains to be seen what the real practical value of the process will amount to.

There is going on in France just now a controversy, interesting to publishers and printers, in the law courts. It is to ascertain whether the simultaneous impression of type and collotype illustrations can be made the subject of patent protection. It is a question of application upon which the antagonists are divided, one side claiming the right of priority, on the ground of having been the first, whilst placing the photographic stereotypes of the text and the image in juxtaposition, to print the whole simultaneously and collographically.

It has been said, *à propos* of the polychrome reproductions of M. Lippmann, "these are merely the colours of thin plates." This is true, but it should not be forgotten that previous to Mons. Lippmann, no one had utilised these sorts of colorations with regard to reproductions. Their existence has been recognised in soap bubbles, in plates of mica, in peacock's feathers, in polarised light, &c., &c.; but it is found that, owing to a sort of canalisation, resulting from the interferential method, there is produced a mixture of spectral colours, which not only presents the forms, but the actual colours of Nature. This is, after the telephone and the phonograph, a very curious example of an infinite divisibility, and a new proof that there is always something to learn.

With reference to these matters, it is interesting to read the following extracts from *The Light*, which were published in 1855-6, thirty-eight years ago :—

"We have, in effect, found in a communication from Mons. Carrere, relative to coloured rings, the following passage, which we transcribe verbatim :—

"'If the different points of the plate are struck by simple different rays, the oxydation will vary from one point to another of the plate ; consequently the thickness of the plate will vary also, and it will result that the colours produced by the thin plate at these different points will be identical with that of the rays which have struck it at these points. Thus will be obtained *photochromy*—that is to say, the formation by light of the images of objects with their colours.' *

"There is attributed to an oxydation of unequal intensity what is, in reality, due to interference. But this opens to us the glimpse of a possibility of reproducing colours by the 'direct action of light.'"

To Mons. Lippmann is due the discovery of a precise means of getting in evidence the fact of an interferential action.

Already, in 1855, *à propos* of direct colours observed upon daguerreotypes, it had been said that this result was due to thin plates, and that very year a discussion took place upon a subject of the same nature (March 10th, 1855).

"Mons. Ross thought that the tints produced in the photo-chromatic images of Mons. E. Becquerel were due to thin plates, tints such as are seen in soap-bubbles, coloured rings, &c., and that the colours are due to a variable thickness of a compound produced under the action of the light."

"This explanation was not admitted by Mons. C. Becquerel, who has not, however, proffered any other in its place. But it is very interesting now to be able to compare these indications with the experiences and positive demonstrations of Mons. Lippmann. We now have proof that what in 1855 was only guessed at was indeed a truth. What was at that time quite unknown was that the action of light was manifested interferentially." *

Among the new works by which the photographic library is enriched we may mention "Recettes et conseils inédits a l'Amateur Photographe," by Mons. George Jardin, and "Ce qu'on peut faire avec des plaques voilées," by M. Max Forest, published by Messrs. Gauthier-Villars.

The new tele-photo lens of Mons. Houdaille, made by Messrs. Clement & Gilmer, seems, from all accounts, to present many new improvements, but it would be as well to wait for the opinion of interested parties (Dallmeyer, for instance) before committing ourselves to a definite judgment on the new lens.

PHOTOGRAPHY AT GREENWICH OBSERVATORY.

THE following account of photographic work at Greenwich is taken from the recent report of the Astronomer-Royal to the Board of Visitors :—

"With the Astrographic equatorial, 722 plates, with a total of 1,812 exposures, have been taken on 161 nights in the year ending May 10th, and of these 116 have been rejected, viz. :—57 from photographic defects, 6 from mechanical injury, 12 from mistakes in setting, 6 from the plate being wrongly placed in the carrier, 7 from failure in clock driving, and 28 from interference by cloud. The following statement shows the progress made with the photographic mapping of the heavens in the year May 11th, 1892, to May 10th, 1893 :—

	No. of Photos taken.	Successful plates.
Astrographic chart (exposure 40m.)	200	183
Plates for catalogue (exposures 6m., 3m., and 20s.)	367	288
Number of fields photographed for the chart	...	172
Number of fields photographed for the catalogue	...	271
Total number of fields photographed since the commencement of the work for the chart	...	176
Total number of fields photographed since the commencement of the work for the catalogue	...	299

"It has been made a practice to take a trail on each night on a catalogue plate as a check on the orientation, and during the past year 127 plates with trails have been thus secured.

"The following miscellaneous photographs (included in the total number of 722 given above) have also been taken :—

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* *The Light*, page 90.

* *The Light.*

	No. of Photos.
Nova Aurigæ	49
For zero of scales and orientation	36
North Pole (for adjustments of Equatorial)	11
Pleiades with various exposures	19
Victoria Comparison Stars (for determination of scale value)	12
Lunar Eclipse, 1892, May 11th	4
Comet Holmes	4
Moon	3
Saturn	5
Conjunction of Saturn and γ Virginis	16
Trails of Equatorial stars	3

"Four of the plates of the Pleiades have been taken with the group in four different positions on the plate for determination of the optical distortion of the telescope.

"Some experimental plates of Jupiter, Saturn, double stars, and lunar craters have also been taken with the image enlarged about fourteen times by a secondary magnifier, consisting of a triple cemented concave lens of 1$\frac{3}{8}$ in. diameter and 3 in. focus, supplied by Mr. T. R. Dallmeyer. The results are very promising.

"One of the *réseaux* supplied by M. Gautier has been in use since May 23rd, 1892; but though the collodion coating has undoubtedly protected the film, pin-holes have developed as before, though in a lesser degree. A *réseau* is occasionally developed alone on a plate for the detection of spurious images on the chart plates.

"The examination of the plates taken specially for testing zero of scales and orientation of plate shows that great care is required in printing the *réseau* on the plate, as well as in placing the plate in the camera of the phototelescope, in order to secure the setting of the *réseau* within 5 in. of the tabular place, and the exact orientation of the *réseau* lines relatively to a star trail.

"The photograph-micrometer as modified to adapt it to the measurement of the Astrographic plates has been brought into use, and appears to answer its purpose well, though systematic work with it has not yet been commenced. A description of this measuring apparatus, which dispenses with the necessity for measurement of the lines of the *réseau*, is given in the *Monthly Notices* for last March. To test the straightness of the perpendicular slide, on which the determination of relative positions of stars in different parts of the plate largely depends, three plates of the trails of three equatorial stars (1 and ζ Aquarii and δ Ceti) taken across the meridian, which (when corrected for the very slight curvature of path) give a mathematical straight line, have been measured, with the result that the errors of the slide are insensible. The *réseau* lines, which have also been compared with the trails, appear likewise to be sensibly straight.

"Some experimental measures of stars on several plates have been made to test the accuracy with which positions can be determined. The comparison of three plates of the same field gives very satisfactory results for positions determined without reference to the *réseau* lines.

"Since the date of the last report, thirty-three of the plates of Nova Aurigæ have been measured for determination of the magnitude of that interesting star. The results up to September 6th are given in the *Monthly Notices* for last November. Since August 30th, when the star, after having fallen below the 14th magnitude, had brightened considerably, the photographic magnitude appears to have remained nearly constant up to April 4th, the date of the last photograph measured.

"III.—Spectroscopic and photographic observations:—

"No spectroscopic observations have been made during the past year, the regular observations for stellar motion in the line of sight having been interrupted by the dismounting of the south-east equatorial, and there being great pressure in the solar photographic work.

"The telescope and camera of the Dallmeyer photoheliograph were again removed on September 9th, 1892, from the wooden dome, where the new buildings obscured the horizon, to the first floor of the new museum, where they were re-mounted on stand No. 3, which was simply placed on the floor and found sufficiently steady. From this position it was possible to photograph the sun during about two hours each day. The instrument and stand No. 3 (the proper stand No. 4 having been lent for use in the Eclipse Expeditions) were taken back to the wooden dome on April 7th, 1893, the sun being then visible over the roof of the intervening building.

"In the year ending May 10th, 1893, photographs of the sun have been taken with this instrument on 180 days, and of these 410 have been selected for preservation, besides twenty-two photographs with double images of the sun for determination of zero of position.

"The photographic telescope presented by Sir Henry Thompson, which has been mounted on the Lassell equatorial, has been in regular use as a photo-heliograph since January, 1893, and photographs of the sun have been obtained with it on eighty-nine days, of which 158 have been selected for preservation. In all, with one photo-heliograph or the other, a record of the state of the solar surface has been secured on 220 days during the year. A new enlarging lens by Messrs. Ross & Co., which appears to be very free from distortion, was fitted to the Thompson photo-heliograph on December 13th, and has been used regularly since for the eight-inch photographs of the sun.

"For the year 1892 Greenwich photographs have been selected for measurement on 197 days, and photographs from India and Mauritius (filling up the gaps in the series) on 165 days, making a total of 362 days out of 366 on which photographs are available.

"The solar activity has been fully maintained throughout the past year, though no single spot has appeared equal to that of February, 1892. The mean daily spotted area for 1890 was 100, for 1891, 566, and for 1892, about 1,230.

"This great development of activity seriously increases the work of the department: as an example, it may be mentioned that thirty-five books of the form used in reducing the spot positions were required for the years 1891 and 1892, while in the whole seventeen years preceding, for which photographs have been measured, only eighty-five books had been used, thirty-nine of these having been used in the *three* years 1882-4 of the last maximum. Notwithstanding this increase in the work, the measures and reductions are in a more forward state than at the date of the last report. The measures of positions and areas for 1881 are now passing through the press, and the spot ledgers for that year are prepared for press. The photographs have been measured and reduced up to January 13th, 1893, the reductions examined up to October 27th, 1892, and the copy for press written up to September 10th, 1892. But to cope with this unexpectedly severe sun-spot maximum, it has been necessary to largely increase the number of computers employed on this work, and a further addition will probably be required if, as seems likely, the solar activity continues to increase."

ANGLE OF VIEW.

BY P. EVERITT.

If we examine the picture formed by a photographic lens upon a screen of sufficient size, we shall find it is circular. This circle is the base of a cone of rays transmitted by the lens. Divide this cone in the direction of its axis. The section is triangular, and the angle at the apex is called the angle of view. Let us suppose the focussing screen is square, and that the circle of illumination touches each side. A plate under such conditions would be unexposed at the corners. Yet, to calculate the angle enclosed by such a plate, we have been directed by the rules hitherto accepted to take the diameter of this circle as a factor. It is an astonishing fact that these rules have the sanction of a number of writers, amongst whom may be mentioned Shadbolt, Grubb, J. H. Dallmeyer, Traill Taylor, Woodman, Emerson, and still more recently A. Haddon, the respected curator of this Society.

To cover a plate such as has been described, it is evident the circle of illumination must enclose the plate, and not the plate the circle of illumination. We must therefore measure the diameter of the circle by the diagonal instead of the side of the plate. The perpetuation of the mistake is probably due to the habit, common amongst writers, to take data at second-hand rather than think them out for themselves. There are, however, two noteworthy exceptions. Dr. Eder, in his *Ausführliches Handbuch der Photographie*, gives rules and tables for calculating the angle of view included by a lens, and for that included on a plate. For the latter he takes the diagonal as the basis. Professor W. K. Burton also estimates the angle of view by the diagonal of the plate, according to an article on the Concentric Lens in *Photographic Work*, February 24, 1893.

Recently I criticised, before this Society, the rules laid down by Mr. Haddon for calculating the angle of view included on a plate. They were published in the *British Journal Photographic Almanac* for the current year, and may be taken as correctly representing the rules of the writers first mentioned. These rules take the longer side of the picture as the base of the triangle enclosing the angle of view. You may follow the rules and work the problem correctly, but the answer will always be at variance with the facts. Either the angle will be too wide or the focus of the lens too short when you take the photograph. We may also have a series of plates such as 15×9, 15×10, 15×11, 15×12, yet, by these rules, all will include the same angle, with the same lens, under similar conditions; or, if we wish to include a given angle, from the same station-point, we must use a lens in each case of identically the same focus. Further, no matter what position the lens may occupy on the front of the camera, the angle will remain the same. Rules giving such results are evidently wrong, and, as a more rational system, I would suggest the adoption of the method used in perspective.

The circle of illumination of a lens corresponds with the base of the cone of visual rays. The lens is the eye and the picture plane is the photographic plate. These are corresponding terms in photography and perspective. The picture plane is vertical, and must not extend beyond the base of the cone of rays.

The angle of view in perspective is limited to sixty degrees to avoid that exaggerated appearance with which we are familiar in pictures taken with wide-angle lenses. But, for the purpose before us, this may be disregarded, since what is true of an angle of sixty degrees is also true of any other angle. In perspective, if the picture plane touches the edge of the base of the cone of rays at any point, it is said to include an angle of sixty degrees, and, similarly, we may speak of pictures including any other given angle.

On the picture plane there are two important lines, the base line and the horizontal line; the base line is that upon which the picture rests, and the horizontal line extends from right to left at the height of the eye. Upon this line is the centre of vision, or centre of the circle forming the base of the cone of rays. The axis of this cone is called the principal visual ray, and corresponds with the focus of the lens.

The artist may select any portion of the base of the cone of rays for his picture, and the photographer does a similar thing when he moves the cross fronts of the camera in arranging the subject on the focussing screen. What, then, are the conditions which determine the angle of view for any given picture? First, the distance of the spectator from the picture plane, which, in photography, we may call the focus of the lens. Second, the position of the centre of vision, which, as I have shown, will vary according to the position of the lens on the front of the camera. To ascertain the position of the centre of vision, we must draw a line perpendicular to the plate from the apex of the cone of rays. Where the line touches the plate is the centre of vision, and we must measure the distance thence to the farthest corner of the plate. We can now measure the angle of view by means of the table of natural tangents given by Mr. Haddon, the rule for which should be stated thus :—

To find the angle, divide the distance from the centre of vision to the farthest corner of plate by the focus of the lens. Find the nearest number to this in the table of tangents, and twice the arc opposite it is the angle required; or, if we know the angle of view, and wish to find the focus, find the tangent opposite the arc, which is half the angle of view. Divide the distance from the centre of vision to the farthest corner of plate by the tangent. The answer is the focus of the lens required.

Mr. Haddon was unfortunate in the selection of the title of his article, "Angle of View included on a Given Plate by a Given Lens." If the lens is not opposite the centre of the plate, the whole angle of view is not included. But the expression is permissible if we understand by it the angle under which the picture is taken. I mention this merely to draw attention to the fact which some may overlook, that the angle is different if the lens is moved by using either of the cross fronts. It must also be remembered that a lens can be used to cover a larger angle if the axial ray is not perpendicular to the plate, as pointed out by Mr. W. E. Debenham when the subject was last under discussion. But, as I have used the term angle of view in relation to the picture, and not to the lens, the rules I have given apply to the picture only. If it is required to calculate the angle covered by a lens under the abnormal conditions mentioned, the necessary modification must be made in the formula.—*London and Provincial Photographic Association.*

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

12,008. JOSEPH BARNES, 53, Arcade Chambers, St. Mary's Gate, Manchester, "An Improved Plate Rest for supporting Negative or Positive Photographic Plates in a Fixing or other Bath."—*June* 19*th*, 1893.

12,287. ALFRED JULIUS BOULT, 323, High Holborn, London, "Improvements in Photographic Apparatus."—*June* 22*nd*, 1893. (Paul Meyer, France.)

12,296. JACOB HUSNIK, 8, Quality Court, Chancery Lane, London, "Improvements in the Manufacture of Half-tone Gelatine Reliefs for Process Blocks."—*June* 22*nd*, 1893.

12,304. FRANCIS WILLIAM EDWARDS and HARRY RANSOM, 86, Fleet Street, London. "An Improvement in the Manufacture of Sensitive Plates or Films for Photographic Purposes."—*June* 22*nd*, 1893.

12,443. WILLIAM JOSEPH GREATOREX, 40, Chancery Lane, London, "Improvements in Photographic Apparatus."—*June* 24*th*, 1893.

Specification Published.

13,875. *July* 30*th*, 1892.—"Photographic Changing Boxes." A. S. NEWMAN and J. GUARDIA, 71, Farringdon Road, London.

This invention relates to improvements in the means by which the carriers or sheaths of changing boxes are caused to come up to focus. For this purpose a partition or dummy carrier or sheath (or it may be a sheath sufficiently strengthened at the back) is provided, and the springs which take up the shake in the box are fixed to the said partition or carrier in such a position or manner that they do not injure the film of the next plate. This partition travels along among the sheaths or carriers in precisely the same manner as the said sheaths or carriers, and may be made of so different a thickness or shape as to indicate when the whole series have been changed or exposed.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan & Co.

APPARATUS.

MESSRS. MARION have introduced a new appliance, which will be valued by amateurs, in the shape of a folding metal frame to hold negatives. The frame folds up book fashion, and fits into a neat case. The contrivance is not only a thorough protection against breakage, but will prevent all access of damp to the negatives enclosed within it. Fig. 1 shows the folding frame with negatives inserted in it, and Fig. 2 represents the frame closed and put away in its case.

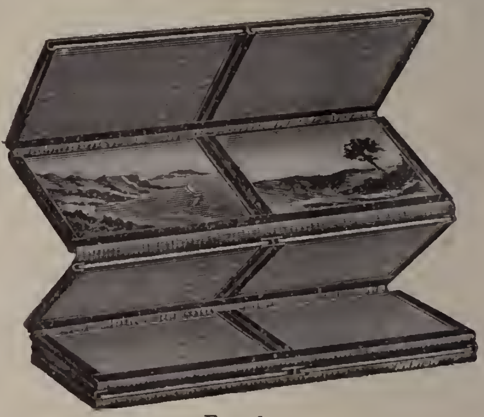

FIG. 1.

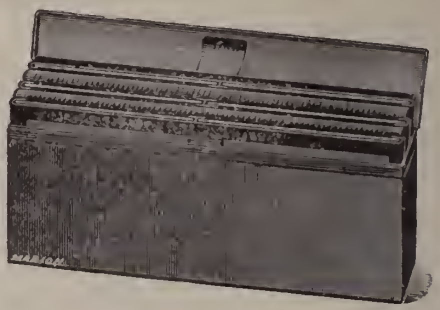

FIG. 2.

The same firm have improved upon their bromide paper printing lamp by making it of larger size. It is a most useful adjunct to the dark room, especially to those who make lantern slides their hobby. Messrs. Marion are now issuing a new and improved form of Kershaw's shutter, which is worthy of attention.

* * *

MESSRS. WORMALD & Co. inform us that they have removed to Rodney Road, New Malden, Surrey.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

June 29th, Annual General Meeting.—Mr. ALEXANDER MACKIE in the Chair.

MR. T. E. FRESHWATER read the eleventh annual report of the Committee :—

In submitting this report the Committee have to congratulate the members on the very sound basis on which the Association stands. There is a large balance on the right side, though this balance would have been much larger but for the sum spent on the binding of so many volumes of the photographic journals ; but we have the value, though not the cash, and if we go on increasing the library to the extent we have lately, we shall soon want another book-case, so I will ask you to look around and see if you can find another kind friend to give us one. There have been gatherings of members and visitors. Many valuable discussions have taken place, arising out of lectures given and papers read by members and others well known in the photographic world, amongst others being :—" Intensification," by Mr. Teape, the discussion on which lasted three evenings ; " On a Simple Apparatus for Testing Oxygen," by Mr. Haddon, assisted by Mr. Gundy ; " Photographing Paintings by Artificial Light," by Mr. W. E. Debenham ; " On the Calculation of the Angle of View," by Mr. Everitt ; " Retouching," by Mr. Redmond Barrett ; " Investigations in Spirit Photography," by Mr. Traill Taylor, which has caused no small stir in the photographic world ; " The Sandell Plate," by Mr. Fry ; " Determination of the Speed of Plates," by Mr. Williams ; " The Influence of the Hand Camera," by Mr. W. D. Welford ; " Is the Present Construction of the Photographic Studio Wrong in Construction ?" by Mr. W. H. Harrison ; " Development of Instantaneous Exposures," by Mr. Parfitt ; " Stereoscopic Photography," by Mr. Dando ; " Photographic Limits," by Miss Catherine Weed Barnes ; " Various Rapidities of Printing Processes," by Mr. Foulkes Winks ; " Flashlight Continuous Lamp," by Mr. Hudson ; " On the Difference in Bulk of Liquid Ammonia," by Mr. Haddon ; " The Hurter and Driffield System of Testing the Speed of Plates," by Mr. A. Cowan ; " The Toning of Chloride Papers," by Mr. Welford. A course of technical lectures has been started, which at some future time it is hoped will be put together in book form. We have had one on " The Lens," by Mr. Traill Taylor ; " On Camera Tripods and Dark Slides," by Mr. Clifton ; " On Developers," by Mr. E. J. Wall, and we hope this next year to get through a good many more.

The Lantern and Musical Evening was attended by nearly 350 members and their friends ; in fact, the large room in the hotel was not big enough for the gathering.

The Lantern Evenings have been much appreciated, and when Mr. Hindley showed his Irish slides the room was overcrowded.

The Fortnightly Outings have not been so well attended as they might have been.

The Library has had many additions and valuable gifts of books from the friends of the Association, and they have been very carefully arranged by the Librarian, Mr. F. W. Pask.

The Affiliation scheme seems to be successful. The Association has been ably represented on the Committee of Delegates by Messrs. Everitt and Pask, and much good work has been done.

We have lost one of our most able members through death —that is, Mr. William Bedford, and I think the last photographic meeting that he attended was that of this Association.

There have been a good many new members elected during the year and several resignations, and the Committee ask the members to do all they can to increase the number and look around to see whom they can bring into the ranks of this Association ; also, they ask the members to do a little more in way of getting papers to be read and subjects for discussion, and fifty-two meetings in the year are a great many and entail a great amount of work in this matter.

We cannot close this report without expressing our great regret that our late Secretary, Mr. Drage, has been compelled to leave us. The Association has grown and made great strides during his three years of office, and we can only say that we hope the long holiday that he is about to take will do him much good, and that we shall see him back again safe and well.

The report and balance-sheet, which showed the Association to be in a healthy financial condition, were adopted.

Two or three alterations in the rules were made, and votes of thanks to the various officers for their services during the past year were adopted.

Mr. P. EVERITT proposed, and Mr. W. E. DEBENHAM seconded, a vote of thanks to Mr. R. P. Drage, for his services to the Association as Secretary during the past three years, in recognition of which the same gentleman proposed a resolution that Mr. Drage be elected an honorary member of the Association. Both resolutions were carried by acclamation.

The election of officers for the ensuing year resulted as follows : — Committee : Messrs. G. W. Atkins, Thomas Bedding, J. Weir Brown, C. H. Cooke, P. Everitt, C. H. Oakden, J. S. Teape, W. D. Welford. Librarian : Mr. F. W. Pask. Curator : Mr. A. Haddon. Trustees : Messrs. J. Traill Taylor and J. B. B. Wellington. Hon. Secretary and Treasurer : Mr. T. E. Freshwater.

A vote of thanks to the Chairman concluded the proceedings.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, held June 27th.—Mr. T. H. SMITH in the Chair.

MESSRS. RITA, LOW, Fort, and Dr. Harris were nominated.

Messrs. Houghton's representative showed and explained their new Shuttle hand camera, also the tele-objective lens, and examples of the work done by these two instruments were shown.

Mr. RODER handed round some negatives developed by amidol, and Mr. ROOFE some with metol.

Mr. GOSLING gave his report of the excursion to the Zoological Gardens. Owing to the weather only seventy plates were exposed.

Mr. WIRE showed some bromide prints developed with amidol ; he found that the image was somewhat lost in the fixing bath.

The HON. SEC. said that if prints were left too long in the fixing bath, there was a great tendency towards reduction ; the same remark would apply to plates.

Mr. DEAN showed a P.O.P. print toned to a brown colour, in contradiction to Mr. Gosling's assertion that it did not lend itself to brown shades.

Mr. Hudson then proceeded to give a demonstration on development. The formula he used was:—A. Eikonogen, ¼ oz.; hydroquinone, ¼ oz.; sulphite soda, 2 oz.; boiling water, 20 oz. B. Carbonate soda, carbonate potassium, caustic soda, of each 1 oz., in 20 oz. of water. To use—take for portraiture, ½ oz. No. 1, 1 oz. water, 1 dram No. 2. To use—take for rapid exposure, 1 oz. No. 1, 1 oz. water, and 2 drams No. 2.

Liverpool Amateur Photographic Association.

On Thursday, June 29th, the sixth ordinary general meeting of the Association was held in the Club-rooms, Eberle Street, the chair being occupied by Mr. Paul Lange. There was a very good attendance. Three new members were elected.

Excursions to the following places were announced:—Burton (Cheshire), for beginners, Saturday, July 8th; leader, Mr. J. T. Norman Thomas. Puddington, Saturday, July 22nd; leader, Mr. F. Anyon.

The Chairman then called upon Mr. W. T. Wilkinson, of Manchester, to give his lecture and demonstration on "Photogravure." After describing the class of negative for photogravure, a carbon positive was developed, then a ground was laid with resin on copper-plate, and a carbon negative developed upon dusted copper-plate, the image being afterwards etched in relief. After replying to a few questions of technical interest, the spectrum was projected from the limelight through a prism, and various colour screens interposed to show the orthochromatic value of various aniline dyes, and also demonstrating the value of different screens both for orthochromatic work and providing a safe light for the dark room.

Mr. Wilkinson was cordially thanked for his most interesting scientific contribution.

Birmingham Photographic Society.

Programme for July, 1893.

Saturday, July 1st.—Half-day excursion to Meriden. See June programme.

Tuesday, July 4th.—Exhibition of negatives taken on the Dovedale excursion, June 12th, 1893.

Saturday, July 8th.—Last day for sending in photographs for the Stoneleigh Excursion Competition.

Tuesday, June 11th.—Social evening.

Wednesday, July 12th.—Whole-day excursion to Charlecote, Hampton Lucy, Wellesbourne, Sherborne, and Compton Verney. Leader, Mr. W. Jones. Train leaves Snow Hill for Warwick at 8.32. Vehicles will meet the train and convey the party to Charlecote, *viâ* Hampton Lucy. Dinner at the King's Head, Wellesbourne, at 2 o'clock; thence, *viâ* Sherborne, to Warwick. A saloon carriage will be retained. Railway fare, 2s. 7d.; brake, 2s. 6d.; cold luncheon, 2s.

Saturday, July 15th.—Last day for sending in photographs for the Meriden Excursion Competition.

Tuesday, July 18th.—Social evening.

Tuesday, July 25th.—Social evening. Members are invited to bring prints and negatives to all the Tuesday evening meetings when no special paper is announced.

Wednesday, July 26th.—Last day for sending in photographs for the Charlecote Excursion Competition.

Saturday, July 29th.—Half-day excursion to Salford Priors and Cleeve Priors. Leader, Mr. Wm. Rooke. Train leaves New Street at 2.15. Returning from Salford Priors at 9.5. Railway tickets at Cook's offices. Fare, 1s. 6d. Tea will be arranged for at Cleeve Priors.

The meeting on July 4th will be held in the Large Room, Colonnade Hotel; the meetings of July 11th, 18th, and 25th will be held in the Club Room; all at 7.30 p.m.

A prize—an enlargement—is offered by the Society for the best picture taken on July 1st and 29th. A silver medal has been kindly offered by Mr. Carter for the best picture taken on July 12th.

Pictures for competition must be sent in to the secretary, at the Club Room, within fourteen days from the date of each excursion.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

D. and Son.—There are two or three brands of paper—Alpha, Aristotype, &c.—upon which you can make enlargements, bringing out the image by development. These are presumably chloride papers, with possibly an admixture of bromide.

G. G.—An arc-light, under such conditions, would want some kind of diffuser—say, a double concave lens of large diameter. Consult an electrician.

Sambo.—The quantity of metabisulphite in your formula is unnecessarily large. Try half the quantity.

M. N. S. (Vienna).—The leading photographic paper in India is the *Journal of the Photographic Society of India.* It would be supplied to you by Thatcher & Co., of Bombay.

J. K.—Use, instead of liquid ammonia, a saturated solution of carbonate. The latter must be fresh and in good condition—*i.e.*, free from any trace of efflorescence.

Mentor.—Send us a sample and we will try it.

J. A.—The apparatus is effectual when only a very small number of plates are in question. In the case of a busy photographer it would cause more trouble than it is worth.

L. (Chester).—From dealers in chemical apparatus you can obtain a glass tube charged with mercury, which you can adjust so that at any desired temperature the mercury will rise and cut off the supply of gas to your burner. The same device could easily be made to ring an electric bell when a certain temperature was attained.

Simple.—Print in the sun, but cover the frame with tissue paper or ground glass.

Cracked.—An old plan is to hang a board horizontally beneath a roasting-jack and to place the printing frame thereon, by which device the crack does not show in the positive. A far better way is to lift the film from the glass—after removing the varnish—and to transfer it to a fresh support.

P. P.—We can only regret that the formalities of which you complain are really necessary, and have no comments to make thereon.

Alonzo.—The Post Office Directory will give you a large choice if you turn to the pages devoted to "Trades."

Meta.—An even tint of aniline colour can be produced on a gelatine slide by first soaking the picture in water. It must then be allowed to become surface dry, when the colour is laid on with a full brush, as if a water-colour drawing on paper were under treatment.

NT OFFICE

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1819. JULY 14, 1893.

NOTES.

THE Organising Committee of the Photographic Salon, which is to be held in the Dudley Gallery, have just issued a full prospectus and entry form. Copies may be obtained from the office at 215, Shaftesbury Avenue, London, W.C.

We lately animadverted upon the growing practice of advertising pills and other nostrums by means of hoardings placed within fields and meadows bordering the railway lines. Many a pleasant prospect is now spoilt by these ugly things, and it seems a pity that there is no way of removing them. The railway companies are not to blame, for the boards are mostly on fields outside their jurisdiction, and land is now such a drug in the market that owners are not too particular as to the use made of their property, provided that it brings in a return.

One of the prettiest prospects to be seen from a railway carriage is the view of the Thames at Maidenhead Bridge. This view we lately found to be almost blotted out by a wall erected, for some reason or other, on the railway embankment. We suppose that there is some good reason for the Great Western Railway Company depriving their patrons of this beautiful glimpse of the silver Thames, but their action is to be greatly regretted.

A novelty in the shape of printing paper has recently been submitted to us, and from trials which we have made it seems to be a good thing. It is a printing-out bromide paper, requiring a very short exposure and giving a good range of tones on a matt surface. This paper, we understand, will probably soon be put upon the market. At present we are not at liberty to say anything about its preparation, further than that it is the result of two years' careful experimental work upon the part of its inventor.

We have received a pamphlet from the Association for the Promotion of Home and Foreign Travel, whose business it is to arrange summer tours for all, and who provide some more especially designed to meet the aspirations of amateur photographers and architects. One of these comprises the Hanse towns and the most interesting parts of Denmark and South Sweden. The offices of the Association are at 41, Eastcheap, London, E.C.

The two last numbers of the *Graphic* contain photographs, bearing upon the recent naval disaster, which are full of interest. Commenting upon these pictures, the editor, who by the way is himself an accomplished amateur photographer, writes as follows :—"A few words may be said here upon this application of photography to sea life, and its connection with the sad disaster which has so recently taken place. There was a time when the sailor's business, his habitation, habits, and work, were alike unknown to the great majority of landsmen except in a very general manner. Nowadays, however, by the aid of photography and reproductory processes, the whole thing is brought home to us most vividly. It must be almost impossible for those who have been interested in such sketches as we produce to-day, and have frequently produced in the past, not to conjure up for themselves some picture of what was happening on board those two vessels at the ill-fated moment when the prow of one sent the other to the bottom, and so many gallant fellows into eternity."

The most interesting, and certainly the most melancholy, of these photographs is an instantaneous view of the *Victoria* in the act of going down, with her stern high in the air, showing both propellers clear of the water, the vessel being partly hidden in a cloud of smoke and steam. This is the first photograph of a ship in the act of foundering which has ever been taken. It is obvious that such a picture might be invaluable as a witness as to the occurrence.

Members of the Photographic Convention who happened to stop in the neighbourhood of Plymouth on the Royal Wedding Day, instead of being tempted away to join the excursion which was planned for that day down the River Dart, were well rewarded by the beautiful sight afforded by the war vessels of various types decked with flags. At one o'clock many of them fired a salute of twenty-one guns, and one photographer of our acquaintance secured many good pictures at this interesting moment.

A most beautiful and unique spectacle was afforded at night, when at half-past nine all the ships in the Sound girded themselves with bands of coloured lights, and a big schooner piled with hundreds of tar barrels was turned into an aquatic bonfire.

Some members of the Convention were regretting afterwards that no attempt was made to photograph this incident. The thing might have been done with ease by a short exposure early in the evening to secure details of the beautiful harbour, while the same plate was again exposed later on for the conflagration and the fireworks. It is a pity that the suggestion came too late, otherwise a most interesting memento of the Royal Wedding Day might have been secured.

The special correspondent of the *Telegraph* stationed in the Park on the occasion of the Royal Wedding dilated at length on the absence of what he described as the perambulating photographer, who usually records his impressions of the occasion with abundance of "calmness and *aplomb*." The photographer foolish enough to "perambulate" in search of "impressions" on such an occasion would not have much to show for his pains. As a matter of fact, he does not "perambulate" at all, but secures some fixed point at an elevation, where he can work at his ease. This is often a matter of some difficulty, and requires much judgment and not a little negotiation beforehand with the owners of suitable premises.

It is pretty certain that scores of photographs were taken by professional photographers, while the attempts by amateurs were legion. It was unfortunate for the latter, who "snapped" at the Royal couple while on their way to the City, that the route was from west to east. The sun was of necessity at the back of the carriage and in front of the camera. One gentleman whom we saw on the roof of a house in Fleet Street was sublimely unconscious that the sun was shining full into the lens at the time of the exposure.

Much wiser was the Chinese gentleman who at an early hour on Friday morning was astir and, chartering a hansom, traversed the route, taking photographs of the decorations at the principal points.

One firm made a great mistake in bringing out, directly after the announcement of the engagement of the Duke of York, a photograph representing the Duke and the Princess May standing side by side. The idea conveyed was that the two had been taken together, whereas the picture was made up of two separate photographs. Apart from the bad taste of the notion itself, there was the further drawback that the two faces were lighted differently, while the Princess was turning her back upon the Duke. A visit from one of the Duke's officials resulted in the photographs being withdrawn.

According to a journal representing lithography, the photo-engraver, whose special work is the production of photogravures, is very frequently at odds with the artist. The engraving, we are told, has to be done to the satisfaction of the painter, who is often a faddist with strange ideas as to how his colours should be rendered in monochrome. But who is to decide this nice point? To represent exactly the relative values of red, blue, and yellow in their infinite combinations by monochrome tints of varying intensity is extremely difficult, and the result must often depend upon individual taste. Theoretically, photography should settle the question; but even with the assistance of isochromatic plates, it is doubtful whether every colour can be accurately translated. Besides, the effect of colour on a sensitive chemical combination is not necessarily coincident with the effect on the retina. When scarcely two people see colours in absolutely the same way, it is not extraordinary they should disagree on their translation into monochrome.

According to a West Country paper, the Plymouth Conventioners would have had a rare chance of securing an unique hand-camera shot had they strayed as far as Appledore. The paragraph to which we refer runs thus:—"As some young men were firing some cannon in honour of the Royal Wedding festivities, one of them burst." We can only say—poor young man.

THE PHOTOGRAPHIC CONVENTION AT PLYMOUTH.

EVERYONE who has had any experience of Photographic Convention meetings will know that between them and the clerk of the weather there is a great gulf fixed, and that the said gulf is generally more or less full of rain-water. So much has this hitherto been the case, so persistently have leaden skies dropped their unwelcome fatness upon these annual outings, that it occurred to many that the recent drought might have been stopped in its dusty progress, or indeed prevented altogether, if the Conventioners had only fixed their meeting at an earlier date. It will therefore be evident that it is to the interest of all men, even to that of water-proofers and umbrella makers, but especially to agriculturists, that they should become members of the Photographic Convention, in the hope that they will be able to control the date of the meeting, and so turn the rain upon the thirsty land at the right moment.

The clerk of the weather is an artful fellow, for he took care that the week should open with delusive promises of fair weather; indeed, it was on Monday so scorchingly hot that railway travelling was a weariness of the flesh, and contact with one's fellow-creatures was bothersome and undesired. With such sunshine and with a high barometer, everyone looked forward to clear skies, and many hundred plates were packed up and taken to Plymouth upon this apparently reliable security. But when Tuesday dawned, and the man who could not sleep looked out of his hotel window at 4 a.m., he saw well enough that the weather clerk was up to something. The sky was a mass of gorgeous tints—mostly non-actinic in hue; and we know that such "a red sky in the morning" is regarded by shepherds as a hint to put mackintosh overalls on their sheep, and that they act accordingly. But the large majority of Conventioners who did not put their heads out of their windows at 4 a.m., and missed the red-hot sunrise, and also missed "Jerusalem the golden," tinkled out of tune on the church carillon six times over, and slept the sleep of the just, were of course ignorant of this warning, and at 9.15 had gathered on the West Pier to go on board the s.s. *Princess Royal* in order to spend a happy day.

The *Princess Royal* is a paddle steamer which, by the forethought and great liberality of the local Committee, had been chartered for the use of the Convention. A good, roomy, comfortable boat it is, and, if the weather had only been what it ought to have been, a most enjoyable trip it would have been; but, before the steamer had covered half a dozen knots, down came the rain. The question has never, we believe, been satisfactorily settled why Nature pumps up the water from the ocean on purpose to drop it again in the same place. If she confined these little attentions to the land, where water is urgently required, well and good; but why the sea should be deluged in this way it is difficult to say. The ocean cannot possibly be made wetter and in a more saturated condition than it already is. And it would seem that a better illustration of adding excess to superfluity than sending coals to Newcastle would be taking water to the sea. But we are entering upon the consideration of a problem of which there is no solution, but any quantity of water to make one with. It is sufficient to say that the rain poured down in torrents, and that thunder and lightning played an energetic accompaniment.

According to the programme, the voyagers should have landed at a certain spot in order to take photographs: but the rain forbade all thought of such a thing, and they had to stop aboard, huddled together, and exhibiting great good humour under the circumstances. Songs, and music on a kind of glorified Jew's-harp, which one of the members brought and operated with praiseworthy persistence, served to beguile the time; and, when the hat came round for the benefit of the Benevolent Association, the auditors showed their appreciation of the melodies to the tune of three guineas. Dinner on board took up a little more time, and then the steamer came back once more to port, to start in a few minutes for Cremyll. Down came the rain once more, to prevent another prearranged landing; and, in the midst of it, the steamer proceeded up the Hamoaze and Tamar, passing warships of all patterns and periods, from the newly-built turret-ship to the old wooden hulk, which long ago had been turned into a blacksmith's shop, or devoted to some other peaceful purpose. Many were the regrets that so many opportunities for picture-making were negatived by Jupiter Pluvius; but the rain cleared away towards evening, and the party were able to land at Cotehele Quay with tolerable comfort.

As a wind-up to this trip, permission had been obtained to visit Cotehele Manor House or Hall, the ancient seat of the Edgcumbe family, and well worthy is it the attention of anyone of antiquarian or artistic tastes. A beautiful building in itself, it contains old tapestries and many antique articles which are full of interest. The members were divided into parties of twenty each before admission could be granted, for sad it is to say that the old place and its belongings have suffered from previous visitors. These depredators, who call themselves relic-hunters, have had no conscience, and, besides mutilating any article of furniture which may have struck their fancy, have actually cut leaves from an old Bible which lies upon one of the tables. Luckily the relic-hunters have been checked, and there are still many things worth seeing at Cotehele. In the baronial hall is a small but interesting collection of arms, including an artificial armoured limb, the fingers of which are so constructed that they will grasp a sword, and many old cross-bows of steel. In a tapestried room close by is a "black jack" leathen jug of huge proportions; some very old china, Queen Anne's snuffers, and a chair in which Queen Elizabeth is said to have sat, which bears date fifty years subsequent to that monarch's decease.

The visit to Cotehele involved a walk up a steep hill, and the excursionists were evidently refreshed by the change of scene, for the return trip in the steamer seemed all too short, although it lasted an hour and a half.

Altogether the s.s. *Princess Royal* covered about forty-five miles that day; and every one was loud in his acknowledgment of the generosity of the local committee in arranging such a thoroughly enjoyable excursion.

An alternative trip had been arranged for those who, in the sympathetic words of the programme, might "have fears of their sea-going powers." This second party were to visit Tavistock, and, after a circuitous journey, were to join the steamer excursion near Cotehele. But, although the steamer stopped at the appointed place, and whistled with all the acoustic energy of an Atlantic liner, answer came there none. Those who had fears of salt water had succumbed before the deluge of rain, and were never heard of more.

Wednesday morning was dull and misty, but, as the day was to be devoted to business meetings and reading of papers, this did not matter, save that the group of Conventioners was to be photographed at mid-day, and it would be a pity if the rain came down. But the sky cleared earlier than this, and umbrellas remained unfurled. First came a general meeting, at which, after the inevitable reading of the minutes, invitations for next year's Convention meeting were considered. The choice was between Shrewsbury and Dublin, and, by a show of hands, the Irish capital was the successful competitor for the task of offering hospitality to the Photographic Convention of the (still) *United* Kingdom. Next came votes of thanks to the Mayor of Plymouth for the use of the Law Courts; to the Plymouth Institute for the loan of the Athenæum Rooms; and to the local committee and leaders of excursions for all their generous and self-imposed labours on behalf of the Convention; and, lastly, to Mr. Cembrano, the hon. sec., whose labours had contributed so much to the success, financial and otherwise, of the Convention. The Hon. Sec. replied, and modestly said that he deserved no praise whatever, but that he would give them a few particulars about their financial position. He held a balance, he said, of fifteen pounds odd, and thought it would be about double next time, although the number of members was less than last year. He had received 173 subscriptions this year, which, he thought, was very good considering the counter-attraction of the Royal wedding, &c. Auditors were next elected in the persons of Mr. Webber and Mr. Howson, and, after an interchange of courtesies with America, the formalities closed, and the members separated until twelve o'clock.

We trust that the group will make a successful picture, although a most inconvenient place was chosen for photographing it. The members were stacked together on the steps of a church door, and very tightly were some of them packed. About half-a-dozen cameras were employed and crowds of idlers formed a ragged frame to the composition.

The afternoon was devoted to the reading of papers, and, in the evening, the members were received by the Mayor of Devonport at the Guildhall of that adjoining township. A lantern show concluded the proceedings, and a number of good pictures—the work of Mr. Keene, of Derby—were thrown upon the screen. It is said that it is the most unlucky thing to break a looking-glass; but it is certainly unlucky for the pictures shown to break the lantern condenser, and, strange to say, this happened both at Devonport on Wednesday, and at Plymouth on Monday. The pictures exhibited subsequently were disfigured by a black mark across the disc.

A notable feature of the Devonport Show was the exhibition by Mr. Cunningham of a most interesting series of slides, which had been prepared from negatives taken at the Marine Biological Laboratory, Plymouth. Many of these had been photographed from the living animal in its tank of sea-water, and they represented a very valuable application of photography. First were shown star-fishes and sea-urchins, and it was pointed out how, by means of suckers and tubes, these creatures manage to walk —or, rather, drag themselves along. These tubes, in the case of the sea-urchins—or sea-hedgehogs—project far beyond the long spines with which the body of the animal is covered, and were well shown in the photograph. Next came the angler fish, an ugly customer, who buries himself in the soil on the sea-bed, while he dangles above his capacious mouth a small fishing-rod and bait, which tempts smaller fish to get within the reach of these capacious jaws. Certain laboratory apparatus was shown, the purpose of which was to settle the question whether the development of pigment upon the upper sides of flat fish, while their under side remained colourless, was due to the action of light. For three years fish had been shut up in this apparatus, which was dark above, while, by means of mirrors, light was thrown up from below upon their under sides. The result was as expected, and several photos showed how pigment spots began gradually to appear upon the white surface, until the whole became dark.

Next came drawings showing the gradual development of marine creatures. A young flounder with the bones not yet developed contrasted with the same fish after the bones had formed, and after one eye had moved from juxtaposition with its fellow to its permanent abiding place. The newly hatched young of the common sole served as an illustration of the way in which a baby fish is nourished by the yoke bag attached to it before it possesses a mouth to feed by. Some of these flat fish have the right side uppermost, and some the left, but it is a mistake to think that the upper side is the *back* of the fish, as many suppose. The development of the crab from a creature utterly unlike the mature animal formed an interesting item in Mr. Cunningham's remarks, and still more so did his explanation of the growth of a star fish. This creature begins life as a mere bud inside a totally different organism. The bud separates, and the rest of the creature, having fulfilled its mission, dies. A consideration of jelly fishes and how they are born, of polypes or zoophytes, and how there are alternate generations of these polypes and jellyfishes, brought to a conclusion a most interesting and valuable contribution to the evening's entertainment. The proceedings finished with a cordial vote of thanks to the Mayor for his presence and hospitality, and the members returned to Plymouth under a starlit sky which presaged well for the morrow.

(*To be continued.*)

THE EXHIBITION.

THE exhibition of pictures and apparatus in connection with the Convention was held in a well-lighted apartment adjoining the Conference Room, and, although small in itself, it comprised many good things. One end of the room wall space was occupied by the Eastman Company with a superb collection of pictures illustrative of the good results obtainable by the use of Solio printing. Among these were some fine portraits from negatives by Lafayette, of Dublin, others by the London Stereoscopic Company, and some beautiful examples by Mr. R. F. Yeo, of Plymouth, whose work at the last Pall Mall Exhibition was favourably reviewed in these columns. Examples of printing on Nikko paper—now shown for the first time—were also on view by the Eastman Company. This paper is available for all the purposes for which bromide paper is used, but it gives a wider range of tones from warm black to sepia. The company are issuing a small descriptive pamphlet, to which we must refer our readers for further particulars. It is entitled "Eastman's Nikko Paper and how to use it."

At the end of the room Messrs. Morgan & Kidd had an attractive exhibit, which at first sight gave one the impression of a triptych, the walls of the room lending themselves to the illusion. The centre compartment was devoted to bromide enlargements, the left-hand one to collotype, while on the right were shown some excellent specimens of carbon work. The bromide enlargement of a portrait of Lady Brook was one of the most beautiful pictures in the room, while a companion work, a portrait of the Princess Pless, was interesting from the fact that it had been "corrected" by Mr. Van der Weyde's new device. The collotypes, for which Messrs. Morgan & Kidd have erected a most extensive and complete plant, were very fine examples of this method of reproduction, and the carbons were as good. The Richmond firm may well feel proud of being able to show such examples of their skill in such different branches of photographic industry.

Messrs. Thomas exhibited a number of pictures which showed the wonderful latitude of exposure possible by employing "Sandell" multiple-coated plates. Four of the pictures shown were beautiful interior views of different parts of Westminster Abbey. One especially worthy of mention was a view of Dean Stanley's tomb, above which is a window, every detail of which was as plainly delineated as were the architectural features of the structure beneath it. Another series of pictures showed the jump of a boy in its various phases (*à la* Muybridge), in order to demonstrate that Messrs. Thomas can make very quick plates as well as those of the multiple type.

Messrs. Elliott, of Barnet, contented themselves with showing a magnificent direct picture produced in carbon. We have noted on a former occasion that this enterprising firm are doing much to popularise carbon work by issuing sensitised tissue in small quantities and convenient form. The Plymouth exhibition picture forms good testimony to the quality of the material which Messrs. Elliott are placing within the reach of all.

Mr. Le Blanc, the representative of Messrs. Schwarz & Co., exhibited a good picture of a cat, the negative of which had been developed with rodinal, while the enlarged positive had been brought out under the persuasive powers of amidol on bromide paper. The various preparations which are linked with the name of Dr. Andressen were exhibited by the firm just named, and the Devonians were thus introduced to fixing and tone-fixing cartridges, and to all the other labour and bulk saving conveniences which have been brought forward by these enterprising purveyors of photographic requisites.

Messrs. George Mason & Co. were in full force in the apparatus department of the exhibition, and showed a great variety of goods. Their special hand-camera price list includes a wonderful assortment of these popular articles, and as each different kind is illustrated, the reader is able to appreciate their various parts and points of difference.

Messrs. Taylor, Taylor, & Hobson exhibited their recent improvements in lens fittings, which seemed to attract much attention. The panoramic camera of Col. Stuart and Mr. Tweedy is a marvel of ingenuity, and there were shown some capital examples of its work. One, a complete panorama of the view from Plymouth Citadel, was a most extraordinary and interesting achievement.

Messrs. Turney & Co., Plymouth, exhibited their Shuttle hand camera, and many other articles associated with the name of Messrs. Houghton, of Holborn. More than one member of the Convention carried, we notice, a Shuttle camera, and spoke well of its working. Messrs. Turney placed a capital dark-room at the disposal of the members free of charge, and we must personally thank them for their hospitality in this respect to us.

Messrs. Heath, of Plymouth—who took the official Convention group—had a capital exhibit, including portraits of the Prince of Wales, Duke of Edinburgh, &c.; and Mr. Hawke—another local photographer—showed some first-class pictures of the Duke, which were the fruit of thirty-one negatives taken in forty-two minutes. It is not often that a photographer can induce a Royal Duke to sit for three-quarters of an hour, but possibly his Royal Highness knew that Mr. Hawke would make good use of the time.

Messrs. O. Sichel & Co., of 47, Oxford Street, London, importers of picture frames and photographic materials, showed a great variety of goods, including a number of frames which had been filled, by permission, with beautiful photographs from customers' negatives. Among the novelties brought forward by this firm is a child's upholstered chair, with an opening at the back where a concealed parent or guardian can firmly hold a baby sitter while being photographed.

Among the minor exhibits was Beale's "Nonactinine," a scarlet varnish which can be employed for blocking out parts of faulty negatives, or rendering paper and glass impervious to actinic rays of light.

The exhibition was very well arranged; a circumstance which was chiefly due to the early arrival of exhibitors or their representatives.

LONG AND SHORT FOCUS LENSES.

BY ELLERSLIE WALLACE.

THE reaction that has set in of late years in favour of long-focus or narrow-angle lenses as opposed to those of the extreme wide-angle variety is very gratifying to the student of photographic history, and of significant value to all practical photographers.

It seems that the matter has now reached a climax in the new lenses of the tele class universally attracting so much attention. But it is to be hoped that these novel instruments will not be subjected to the abuses which fell to the lot of the extreme wide-angle varieties, so that, with many persons, they became very unpopular.

I think that these new lenses of the tele class may from the historical standpoint be regarded as the extreme evolution or development of the formerly much-used Petzval orthoscopic combination. In this excellent lens, there was a negative or dispersing lens arranged posteriorly to the large meniscus which had its convex surface turned towards the view, thus reversing its usual position when used alone as a landscape lens. This instrument was much in vogue in the days just preceding the introduction of lenses of the symmetrical and non-symmetrical doublet varieties, which gave images absolutely free from such curvilinear distortions as had been disagreeably noticeable both with the orthoscopic and the single landscape meniscus, which, as before said, constituted its anterior element.

From our rigidly accurate modern point of view, the term "orthoscopic" applied to a lens that gave decided hour-glass distortion would be a misnomer, and was even so admitted by many at that early time. It seems that the introduction of the posterior or negative element not only lengthened the focus of the meniscus, but so acted upon its marginal rays as to produce distortion of the said "hour-glass" variety, or, in other words, just the opposite of the "barrel-shaped" or convex distortion of the single meniscus when used in its normal position with its concave side towards the view. But this very defect was cleverly turned to good practical account. It should not be forgotten that at this early time such additions as swing-backs to the camera were hardly known, certainly but little used, and the majority of photographs of architecture were greatly disfigured by the inward bending of the lines at the top of the picture, caused by tilting the camera upwards. Now, by employing an orthoscopic lens, the outward or "hour-glass" distortion (of course most pronounced at the margin of the picture) in many cases neutralised the bending inward of the lines, giving a sufficiently correct image, and yet allowing the camera to be tilted upwards—an immense advantage in outdoor work, as any one who has tried it will testify.

The rage for images free from distortion or "mathematically accurate," as the advertisements of the time used to set forth, which came of itself with lenses of the symmetrical doublet form, particularly by those of wide angle, effectually shelved the old orthoscopic. But there were some conservative opticians who, foreseeing that wide-angle lenses could not be used for all classes of subjects, issued instruments of the compound type—that is, containing supplementary attachments which could be used to lengthen or shorten the focus and include more or less subject. While such affairs are now antiquated owing to their awkward bulk and weight, they were most useful photographically. I worked with one for many years and always found it reliable. The place of these instruments is now supplied by the "cabinets," in which there are several lenses or elements with interchangeable screw-threads in their cells, so that combinations of different lengths of focus may be made at will.

Photographers who are so driven to extremes as to have to resort to the tele lenses will find it incumbent upon them to be even more careful than their ancient brethren had to be when using 90-degree angle lenses. While in the latter case misuse of the wide angle tended to insignificance in the appearance of the picture, with sometimes a strained perspective, there were no troubles to be encountered from the atmosphere itself as is undoubtedly the case with those of the tele variety. Since perfect detail and definition of the distant object is to be expected, we must not forget that the atmosphere intervenes between us, and it is not at all times uniformly transparent in the photographic sense, even when quite clear to the eye. For instance, everyone has observed the flickering in the air rising from heated surfaces in summer. Now, while this would not interfere with ordinary photographing, the scale of all objects being so greatly reduced, it would seriously interfere with definition and purity in the shadows of a distant object photographed with a tele lens.

It is hardly necessary for me to say that while this new photographic power that has been put into our hands is very valuable and adds greatly to our resources, it will not do to abuse it. I can give an example from my own practice in outdoor photography where such an instrument would have been very useful to me had it been in existence at the time. I was travelling through a picturesque part of the Austrian Tyrol, and as the towns here form important objects of interest in almost all the landscapes, I naturally wanted to photograph them. But I was frequently baffled from the fact of their being really distinctly to be seen only from some very distant point, such as a sudden turn in the road one or more miles away. On approaching nearer, the town would be quite lost to view owing to intervening objects, and on entrance into it it would prove to be a mere tangle of dirty narrow alleys in which photography was impossible. Supposing a clear atmosphere, the tele lens would have given me the desired views of the quaint Tyrolean towns with their numerous cupolas and spires and striking mountain background. The ordinary lenses, even those of longest focus, made them too small.

In reviewing a subject of this kind I cannot omit to mention the advice given to persons selecting lenses by Mr. Dallmeyer, of London. It is briefly this, that a lens whose equivalent focus equals the diagonal of the picture will include about the right amount of subject in a vast majority of cases. There never was a truer and more valuable piece of advice given to the photographic public than this. Let anyone do as I myself, for instance, have done, and photograph all sorts of subjects—marine and cloud studies, animals, architecture, street views and landscapes generally—just taking them as they happened to present themselves, and they will find that Mr. Dallmeyer's words are full of meaning, and that they directly conduce to artistic effect in the picture by leading the photographer to select that lens which practice has proved to include enough subject to be pleasing and natural to the eye. I say pleasing and natural. Now, it might often be possible to obtain startling, or perhaps more artistic, effects by the use of lenses of much longer or shorter focus from another standpoint, but this would not give a natural and easily recognised view. The late lamented Mr. Wilson, of Aberdeen, used to say, "I find that the public like views taken from where they see them, and they do not like to scramble for the sake of getting a very fine view of an object if they can see it tolerably well from the queen's highway." Photographers who make views commercially will find this worth remembering, as, of course, such will have the readiest sale as are easiest recognised.

When discussing the various *impedimenta* required by the outdoor photographer, I have always advised that the tripod be rigid and steady. The very light and portable outfits which are now in such extensive use seldom contain one that would be likely to meet the requirements of the new tele lenses. On page 190 of the *Bulletin* for March 25th, Mr. Burton refers to the necessity of absolute steadiness in the camera if good definition is to be hoped for. The weight of the lens itself has nothing to do with the matter, for he expressly states that the one he used was mounted in aluminium and extraordinarily light. It is pleasing to note that his success has been uniform from the start. Before leaving this part of the subject I wish to say that a fault with numerous commercial tripods is that the head or portion on which the camera rests is too small, so that the legs have to come too close together at the top. A little more separation here will be found to increase rigidity, and at the same time make the binding-screw that holds the camera more easily accessible to the operator's hand.

The subject of tele or long-distance photography is, in fact, one of the prominent features of the day, and I may recall the mention made in the *Bulletin* for April 8th that the British War Department is now using the new lens for photographing distant fortifications. Alpine travellers are also becoming aware of its value. A paper was also read upon the subject before the Photographic Society of Philadelphia, March 8th, by Mr. A. B. Parvin, accompanied by proofs made with a tele lens of his own construction, and which were of excellent quality.

As we thus find a new-comer in our already extensive cabinet of photographic lenses, it may be well for us to think of some elementary points in the general care of photographic objectives. The first requisite is that dampness and dust must not be allowed access to the polished surfaces of the lens, when not in use. It is true that both of these foreign matters can be removed, but the operation should not be done oftener than necessary. The fine polish of a high-class lens when it leaves the optician's hands is most delicate and easily spoiled. A minute drop of clean water, even if immediately wiped off with a cloth, will often leave a sort of stain or degradation of the polish that nothing will remove. Many years ago when working out of doors, near a spring of remarkably pure water, my assistant dropped my new rapid rectilinear face down into the wet sand and dirt, and on picking it up a large mass of pebbles was found sticking to the front lens. I immediately dipped the lens into the deepest part of the spring and moved it about to get rid of all that I could. But a small portion still adhered, and I was compelled to remove it with soft paper. The lens has always since showed this mark. Contrary to the opinion given by some writers on this subject, who recommended cotton cloths to be used when the lens requires cleaning, I prefer to first dust the lens thoroughly with a soft camel's hair blender, particularly in the screw-threads of the cell, and then, after breathing over the lens, to give one or two circular wipes—not more—with a good-sized bit of the softest tissue paper, using considerable pressure. If this is neatly done, the brush will not be required a second time. If there are greasy finger marks, a little ether followed by alcohol and a bit of the same soft paper will remove them. The difficulty of returning a lens to its place that has once been unscrewed will depend upon the fineness of the screw-thread. I have seen lenses with which I should not care to attempt the operation, but as a rule they were of inferior construction. It is hardly necessary to say that if the threads do not catch, force must never be used in the hope of making them do so, nor should the back combinations of portrait lenses be strained by screwing down the movable part of the cell too tight, which produces pressure upon the metallic ring intervening between the lenses as well as the glasses themselves.—*Anthony's Bulletin.*

The advantage of having one's photograph on a season ticket has often been pointed out; but in England, at least, railway companies have not adopted the idea. The authorities who govern State railways have larger powers, and the Belgian Minister of Railways, Ports, and Telegraphs has inaugurated a system of fortnightly tickets with which the holder can travel on any line. Each ticket must bear the holder's photograph, and a deposit of 5fr. is required, which is returned when the ticket is given up. These fortnightly season tickets should be a great boon to holiday seekers. The necessity for a photograph is obvious. In the early days of an issue of a season ticket there is nothing to prevent its transference. As soon as the officials identify the features of the holder with the name on the ticket, deceit is very difficult. It is clear in the case of a fortnightly ticket, and where the travelling takes place over several lines, detection would be almost impossible. Hence the photograph is a complete safeguard against impersonation.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JULY 14, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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HAND-CAMERA NOTES.

THE hand camera has been very much in evidence this year, partly owing to the exceptional amount of sunshine with which we have been favoured, and partly to the wonderful manner in which the enterprise of our dealers has kept pace with the demand of the workers. Sunshine is the first requisite of a hand-camera picture. With the cheaper forms of instrument, which are fitted with a stopped-down single lens, it is an absolute necessity, but with more expensive apparatus, which are provided with special forms of lenses, an image can be secured with an incredibly short exposure in a comparatively dull light. Such a picture may serve its purpose as a record, or as an aid to an artist in securing an outline, but it is not often good for much else. Therefore we may repeat that sunshine is an all-important factor in the production of a hand-camera or snap-shot picture.

It would be instructive to learn how many plates are sacrificed for every picture (taken in a hand camera) which is worth looking at; for, as a speaker at the late Convention put it, it requires a very great amount of experience to learn *when* to "press the button." And unless the button is pressed at the exact moment required, the result is unsatisfactory, and the plate is sacrificed.

We take it as an essential of a hand-camera picture of a group of persons that the models should be perfectly unrestrained, and, if possible, unaware that any camera is being turned upon them. If they are carefully posed, they may as well be taken with an ordinary camera supported on a stand, for the use of the hand instrument would only introduce the element of instability at the risk of failure. But it is astonishing how very seldom a really satisfactory grouping is obtained without posing. Here, for instance, is a group of five boys playing at marbles. Their actions are unrestrained, and they seem to the eye to form a beautiful and rapidly changing picture. But photograph them, and as you stand watching their varying attitudes, expend a dozen or more plates upon them, and the probability is that, although your negatives may be good ones technically, not one of them will make a satisfactory picture. A head here will come into awkward contact with a leg there, the line of one boy's back will be continued, in a manner fatal to artistic feeling, by part of the anatomy of one of his companions, or, perhaps, the whole composition would have been good if an obtrusive head had not inserted itself at some wrong place. We do not notice such faults with the eye—or rather we should say with the eyes—because the stereoscopic effect prevents any part of the picture adhering to another part. For this reason an artist who can rapidly sketch such a subject, and exercise the power of selection, will easily make a picture when the camera man will fail.

We may gather from the foregoing that a successful hand-camera man must not be chary of his plates. His work is a lottery in which there are many blanks and but few prizes. He must first have the power to appreciate a picture when it is presented to him. Next he must be able to see quickly whether it will come well within the limits of his plate; he must be able to rapidly judge his distance from the principal object; and, lastly, he must be capable of pressing the button, without tremor, at the right moment.

A word about the development of hand-camera pictures. Much has been written about the best form of camera to use, the advantages of certain forms of shutter, the best finder to employ, and so on; but very little has been said about development. Hand cameras, as a rule, take quarter-plates, and the development of each little plate singly is a weary business, especially when we consider the large number of failures that the average worker must experience. But there is no real necessity for treating such negatives singly. We may at once eliminate any fear of over-exposure; it is under-exposure that we have to guard against; and as this is remedied as far as possible by developing to the greatest extent, it stands to reason that it is safe to treat a number of such negatives at one operation in the same dish. A 10 by 8 developing dish is generally large enough to take six quarter-plates; and if its bottom be flat, four ounces of developer will comfortably cover the lot. Many of the new developers are admirably adapted for the treatment of hand-camera pictures, for they will bring out the faintest detail, and with most of them density is obtained by simply leaving the plates in the bath for sufficient time. But, after all, the developer does not so much matter as the skill with which it is used. It must be suitably restrained so that development shall not be too quick, and a dish of weaker solution should be in readiness in case there should be a plate which shows symptoms of over-exposure—a very unlikely circumstance, as we have already seen. Wholesale development for ordinary negatives cannot be too highly deprecated; but for those taken with a hand camera it possesses many advantages, not the least of which is a great saving of time.

* * *

ON THE POWER OF COMPENSATING IN DEVELOPMENT FOR VARIATION IN EXPOSURE.

BY W. K. BURTON.

THE experiments I am about to describe were certainly suggested by opinions expressed by, or at any rate commonly attributed to, Dr. F. Hurter and Mr. V. C. Driffield some three years or so ago, but I wish to make it amply plain that I do not intend this paper to be taken as a refutation of any opinion that they hold, at the present time at any rate. In the first place, I admire so much the method of investigation that these gentlemen have pursued, that I should be very sorry to write anything that might tend to lower the estimation in which these investigations are held, even if, as may be the case, the conclusions arrived at are not exactly in accordance with fact: and, in the second place, because if there is any refutation to be done, there are plenty of people on the spot much more able to undertake it than I am.

As far as I have followed them, Messrs Hurter and Driffield at first stated that it was impossible, by development, to alter either the density or the opacity ratios in a negative. In other words that, were the thing represented graphically, with light as abscissæ, and one of them having density and the other having opacity as ordinates, then, the abscissæ remaining constant, the ordinates might be altered by variation in the developer, but that their ratio to each other could not be altered. It is, however, as a matter of fact, very easy to so alter the ratio by variation in development that two curves, representing either density or opacity, would intersect each other, in which case the ordinates would, of course, not be proportionate. I understand, however, that Messrs. Hurter and Driffield have considerably modified their views since their first statement was made, and it may be that I do not here represent fairly even the first position that they took up.

Be all this as it may, it is undoubtedly the fact that, some year or two ago, it was the general impression that it had gone out on high authority—with a sound of trumpets almost—that it was impossible to compensate for variation in exposure at the time of development, and that, with the same exposure, it was impossible to control in any way the result, except in so far as density was concerned.

Now I hope to be able to demonstrate that we have power, by variation in development, to compensate for enormous differences in exposure, and that, with the same exposure, we have *enormous* control over the results.

The experiments that are to be described were begun some two years or so before the time that this paper is likely to be read, but were interrupted by work of one kind and another that seemed more important, the truth being that I felt no great enthusiasm to prove a thing that was a matter of every-day experience.

It was like proving, by the aid of a shokojimeter, that if you got no dinner you were likely to be hungry, if you had enough to eat your appetite would be appeased.

When I got thoroughly into the experiments, however, I found them of the greatest interest, because I began to find that our power of compensation is even greater than I had ever supposed, and I found it possible to work out at least an approximate rule for the variation in development that had to be made for a given variation in exposure.

I wish to state my very strong opinion that experiments on gradations of density (or of opacity) are not of any real value, as throwing light on the probable result of exposure in the camera, unless they include such a range of gradation as is commonly met with in actual camera work. I find this range to be generally, at least in ordinary cases, as several hundreds to one, often as a thousand to one, and sometimes as several thousands to one. What I mean is that the plate has received, at the time of exposure, several hundred, or a thousand, or several thousand times as much light at one point as it has at another.

In this connection it is to be noted that the range of light reflected by the object photographed is always greater than the range of light that reaches the plate; that it is often much greater. Thus it is practically possible to have the nearest possible approach to absolute black in the object photographed, otherwise an approach to zero of light, in which case the range approaches infinity. In the case of the light actually reaching the plate, this cannot be the case on account of the unavoidable diffused light in the camera.

For the preliminary experiments a sensitometer on the principle of that of Messrs. Mucklow and Spurge was made. The areas of the apertures varied in the ratio of 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1,024, and 2,048. The holes were bored by a watchmaker, the largest being 1 in. in diameter, and, as far as I can make out, the diameters are very nearly what they ought to be. The instrument is a convenient one, using quarter-plates, and many experiments were made with it. It was, however, considered that these could not be taken as conclusive, because plates could be exposed only in succession, and no standard light was available. Moreover, it was found that a graduation varying from 1 to 2,048 was not sufficient for a thorough investigation of the subject.

It was, therefore, decided to construct a sensitometer in which plates could be directly exposed to light, each half having the same exposure. The plates were then to be cut in two, and the two halves were to be developed in any two developers, the effects of which it was desirable to compare.

This sensitometer is shown in the two photographs I. and II. It is of very simple construction. Photograph II. shows a back view of the sensitometer. It has a door A, which is shown open. Through this door a plate 12 × 2½ (one quarter of a 12 × 10 plate) can be introduced. The plate is held in a brass frame or carrier D that can be raised or lowered by the bar E, having a toothed or serrated edge. This bar is pressed by a spring in the direction of these teeth, so that it will remain at any of fourteen different heights, holding, of course, the plate with it. The spring F presses the film side of the plate very nearly into contact with the front of the sensitometer. In Fig. I. will be seen a slit G, 2 in. in length and a ¼ in. wide. This slit is covered by the flap H, unless the same is held open by hand, as seen in the photograph. The apparatus is designed to give exposures to different transverse strips of the plate of the size of the slit G in the ratios of 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1,024, 2,048, 4,096, and 8,192. Many of the results of experiments will show that this range is not at all too long for investigating the effects of different developers on the two halves of the same plate, though the range is far greater than can be registered correctly ; with any plate so exposed and developed, the strip having the shortest exposure is visible.

It was found by experiment that the shortest exposure that could be given with the flap varied very little and was nearly exactly one-quarter second. A half-second could be guessed with some approach to correctness, one second with more, and two seconds could be be measured roughly with a stop watch, four seconds with but a small percentage of error—all this after some practice, of course. It was, therefore, decided to make the exposures begin with a quarter-second, and work up doubling. It needs, however, only a very little arithmetic to discover that, even beginning at this short length of time, the last exposure must be considerably over half-an-hour, and to make hundreds of exposures of plates, in which the last item alone came to more than half-an-hour, was not to be thought of. For this reason the first exposures were all made a quarter-second each, but the distance of the plate at the time of the first exposure, 10 ft., was made 7 ft. for the second, 5 ft. for the third, 3 ft. 6 in. for the fourth, 2 ft. 6 in. for the fifth, and 1 ft. 9 in. for the sixth and all others. These distances vary very nearly as 1, $\sqrt{\frac{1}{2}}$, $\sqrt{\frac{1}{4}}$, $\sqrt{\frac{1}{8}}$, $\sqrt{\frac{1}{16}}$, and $\sqrt{\frac{1}{32}}$. That is to say, the quantity of light was doubled at each approach of the sensitometer to the source of illumination, all the exposures at 1 ft. 9 in. from the light needed only $\frac{1}{32}$ of the time they would have needed at 10 ft., and the longest exposure was reduced to 64 seconds.

It is not pretended that the successions were really accurately those mentioned above, and it is of no consequence that they should be. Whatever irregularity there might be was bound to affect one half of the plate exactly as the other, and, as the after process consisted in cutting the plates in half longitudinally, and developing the two halves in different developers, the only thing essential is that the two halves of the plate should have exactly the same exposures.

Nevertheless I venture to state that the exposures of all those strips that were exposed at different distances gave very nearly the ratios mentioned, as the rapidest possible opening of the flap was found to remain very uniform, and a dead black screen was placed behind the light, to prevent reflection, which would considerably modify the law of the quantity of light varying inversely as the square of the distance, at any rate considering our light as the centre of illumination. The exposures ½ and 1 second are, of course, the most uncertain. From two seconds on, it may be considered that the acceleration is that stated, within very narrow limits of error. In no case did the light vary more than about 10 per cent. during the making of one set of exposures. The results of one set of exposures might thus be roughly compared with each other, even comparing different slips, but the necessity for this has been avoided by always developing together, in a developer that will be stated, one half of each slip, so that any difference in exposure can be detected.

I have signed my name across each slip, before it was cut in two, that there should be no mixing up, and lest any should doubt the genuineness of the results. These plates would form a confirmation, were any needed, of the recent statement by an expert in handwriting, that no one can sign his name exactly the same twice, and that if two supposititious signatures, that exactly superpose each other, are discovered, it may be concluded that one is a forgery !

To return to the plates, however, as the vendors of various sauces, and other goods, remark, "Without this signature none is genuine."

As a light an oil lamp was used. I have found a common oil lamp, with burner in good condition, well trimmed, with a fairly large reservoir, and with a good quality of mineral oil, to be much more constant for several hours than any candle that I have been able to find, if it is first allowed to burn till all parts that heat have become hot. Of course it is not so good for making comparisons on different days, because the light of a lamp is very liable to vary from day to day. I wish, however, here to remind you again that the results of my experiments are in no way dependent on either the intensity or the uniformity of the light.

It was found that, using a well-known brand of commercial plate, sold as "ordinary," a small lamp of five to six candle-power was just capable of giving a developable image with an exposure of one quarter of a second at a distance of 10 feet.

I have certainly at times worked exceptionally rapid plates that needed only one-fifth to a sixth of the exposures of these. We may, therefore, deduce the fact—by no means bearing on these experiments, but of some interest—that the most sensitive plates made will be visibly affected by an exposure of a mere fraction of a second at 10 feet from a candle.

The greater number of the exposures were made with such a lamp as this, but in some cases, where it was considered advisable that the first figure in the sensitometer, in the sense of the first exposed, should develop out quite markedly, the exposure was made to a lamp with a burner giving a nearly spherical flame (called, I think, a "rose burner"), having a power of some 20 to 25 candles.

Where numbers of strips exposed are stated, it is to be understood that No. 1 is the strip that was first exposed, and that had the shortest exposure. The "first four strips," or Nos. 1, 2, 3, and 4, means, for example, these strips that received each quarter-second exposure at distances of 10 ft., 7 ft., 5 ft., and 3 ft. 6 in. from the lamp.

I wish to state here that nearly all development was done by my assistant, Mr. K. Arito, from written instructions given to him by me without comment. I had distinct reasons for this. In the first place, Mr. Arito is a very careful operator, much more careful than I am—though that may not be saying much. In the second place, although, of course, he knew the general drift of the experiments, he knew nothing of what had given rise to them, or of the exact lines that I was working on. He was, therefore, much less liable to be carried into the inaccuracies that I distinctly state most of us are liable to be carried into unconsciously, or nearly so, when we wish experimentally to prove a particular fact. Still farther, it enabled me to make sure that the experiments could be repeated by any intelligent operator from briefly written descriptions.

Wherever "normal pyro and soda" developer is refered to, it is to be taken as referring to the developer that the writer has most commonly used for several years past—that is to say, one compounded as follows :—

To each ounce of developer—

Pyro (either dry or freshly mixed without preservative)	2 grains.
Sodium carbonate (crystalline) ...	12 „
Sulphite of soda	12 „

This generally works without fogging, but not always, however. When a new batch of plates is bought a sample is tried, and the quantity of bromide needed to prevent any hurtful amount of fog is determined. This never exceeds half-a-grain to the ounce of bromide of potassium with any plate that would generally be pronounced workable. In all these experiments a quarter of a grain of bromide of potassium was used to each ounce of "standard pyro and soda developer."

I do not wish to re-open the old discussion as to ammonia against other alkalies for development with pyro, but shall merely say that I have, for some time, considered that it was possible to get more out of a short exposure with soda, considering not detail only, but the whole of the negative, than with ammonia, and that the present experiments confirm this; that, moreover, I thought till recently that there was greater latitude of exposure with soda than with ammonia, but that these experiments have made me change my mind in this respect, as I have been able to get greater latitude with ammonia than with any other alkali that I have tried.

Here it may be mentioned that a set of experiments incidental to the main experiments was made to discover the relative quantities of bromide of potassium and of bromide of ammonium that were necessary to have the same retarding effect. It was found that, for unit quantity of bromide of ammonium, it was necessary to use that quantity multiplied by between 1¾ and 2 of bromide of potassium. Probably, the exact multiplier lies very nearly half-way between these two—perhaps 1·875. It is near enough for all practical purposes to state that it takes nearly twice as much bromide of potassium to do the same restraining work as any given quantity of bromide of ammonium. It will be seen that the difference is much greater than the different weights of actual bromine contained in the same weights of bromide of ammonium and bromide of potassium.

After a somewhat random set of experiments, conducted to decide on the best lines to work on, more systematic experiments were undertaken. I here give the results of the most interesting of these, not by any means necessarily in the order in which they were carried out.

In all cases the temperature of the developer was kept at as nearly 65° Fahr. as possible.

A.

The instructions were :—

"All plates to be developed with a developer containing 2 grains pyro, 12 grains carbonate of soda, and 12 grains sulphite of soda.

"One half of each plate to be marked 'A,' to be developed without bromide till the last figure is distinctly visible, till there is fair density, but development to be stopped before there is distinct fog.

"No. 1. Develop the B half with a developer containing one-half grain of bromide of ammonium per ounce, but stop when strip 2 only is of the same density as strip 1 in the A half.

"No. 3. One grain of bromide of ammonium to the ounce, stop development when No. 4 only is of the same density as No. 1 in the B half.

"No. 6. Eight grains of bromide of ammonium to the ounce, stop development when No. 7 only is of the same density as No. 1 in the A half."

There were intermediate Nos., and also Nos. up to and including No. 8. I select, however, and send you the results of these three only, as being typical.

These were exposed to the large lamp, and the results must be taken as illustrating those of over-exposure. In the case of all other results sent, exposures were to the small lamp.

It will be seen that, in the case of No. 1, the density of the first few strips is, to all intents and purposes, the same in A and B, but that the density rises, after a little, more rapidly in B than in A. Farther than this the opacity reaches a maximum at about the 9th or 10th strip in the case of the half A, whereas it keeps increasing till nearly the end of strip B. At the end the opacity of B is much greater than that of A at any part.

It will be seen that the compensation for over-exposure here has been considerable, and that the curves, both of density and of opacity, cross each other, so that the density ratios are changed.

In No. 3 the same thing is to be remarked, and besides that the first strip or two of B are less opaque than the corresponding strips of A. Here there is greater compensation for over-exposure, and the curves of both density and of opacity cross each other, so that the density ratios are changed.

In No. 6. the same thing is to be noticed, with the complete suppression of the first four, and nearly the complete suppression of the next two strips of the B side. It must, however, be explained here that intensification was resorted to. The reason for this was that, with the large quantity of bromide here mentioned, corresponding, say, to 15 grains of bromide of potassium to the ounce, the image was white by transmitted light. I mean the deposit. It had no printing value at all, and I had not time to discover even if it was of silver. At any rate it blackened, or rather browned, under intensification. It will be seen here that, at any rate, the curves of opacity cross, and that the opacity ratios are very much changed. This is, however, by the use of an intensifier. The next plate, with double the quantity of bromide in the developer, showed the same peculiarities even more strongly than the last, and it was found impossible even to "brown" the image.

A great number of experiments here intervened, having for their object the investigation of the effects of varying the quantity of pyro as well as that of the restraining bromide, and also to discover to what extent compensation for variation in development can be carried by combined variation in the developer with the after application in the intensifiers. The results of these experiments being summed up in those got with ammonia as an alkali (the experiments just referred to were all carried on with carbonate of soda), I therefore prefer to leave them out, as the recounting of them would be tedious, the more especially as I found the results, in the matter of compensation for variation in exposure, much better in the case of ammonia than with soda, in great measure on account of the whiteness of the deposit with soda, when much bromide was used, that has been already mentioned.

(*To be continued.*)

◆

WE hear that Mr. Dallmeyer has been persuaded to adapt his patent to existing R.R. lenses, and he will shortly publish a paper on the subject. Photographers possessing R.R. lenses can have them adjusted to do telephotographic work, and one merit of the process is that this adjustment is easily removable, and the lens can be used either for its original or for its special purpose.

OUR PICTORIAL FAILURES.

BY THE REV. F. C. LAMBERT.

MR. CHAIRMAN AND GENTLEMEN,—Let me commence my remarks by a confession. In a moment of vanity I was induced by the irresistible suavity of the honorary secretary to promise a paper for this meeting on some art topic. Little did I then think how difficult it would be to find a suitable subject. Thus once more the old saw is illustrated, "Pride goeth before a fall." At the moment of my rash promise I had failed to realise the numerous conditions of the case; and thus more time than I care to tell has been consumed in search of a subject. In a way, too, that has made me feel the force of one who describes his fruitless chase after a certain all-too-familiar, but unmentionable, insect:—"No sooner you put your finger on him, but he isn't there at all, and the reason of that same is directly you catch him you miss him." Thus, again and again have I thought I had hit upon something new, only to find it not true; or again on something old and true, but so very *conventional* that it could no longer be held to interest a *conventional* gathering. Or again, if a subject presented *conventional* and *convivial* features—for the two are in our case somewhat closely akin, if not interchangeable terms—then I grasped it only to find it was neither new nor true. Hence I reach the crux of my apology. In our "failures," we each may hope to find some conventional—*i.e.*, extenuating or mitigating—circumstances. Our failures are, alas! only too true; their truth is only too deeply driven home by their painful frequency. And yet the cloud has a silver lining. Our failures are ever *new*; their newness and freshness has all the doubtful charm of being very much "up-to-date."

I shall presume that most of us when visiting a photographic exhibition have at least two objects in view. Firstly, to see and, as far as possible, enjoy the work of others. Secondly, to gather hints and information from the work which has most favourably impressed us. The second of these only concerns us for the present moment.

I venture to think that I am speaking for many others as well as myself when I say the general impression, after visiting an ordinary photographic exhibition, is one of failure rather than success. To put the matter in other words, the number of pictures that one thinks about afterwards, or would care to possess for constant companionship on the walls of our living rooms is exceedingly small. Would half a dozen out of every hundred exhibits under or over state the mark? Leaving a liberal margin for personal taste, the net result is that the majority—a saddening majority—are, if not failures, certainly not definite successes. There must be some grave reason for so significant a conclusion. Nor should the inquiry fail to interest, stimulate, and add to the value of the discussions of this gathering. On this point I would suggest the following points as being contributory in varying degrees to the general product of non-successes. The free discussion of the topic, whether leading to rejection or acceptance, cannot fail to draw some attention to the subject, and hence tend to diminish the number of failures. But I am not without hope that the results may be distinctly positive and fruitful in producing a greater number of distinct successes.

Some suggested reasons of our pictorial failure :—

1. *The Commonplace.*—I venture to put this first because it seems to include—in somewhat free and easy terms, I admit—the majority of the unremembered. This includes the characterless many, who neither please nor pain—everything about them, selection (save the mark !), exposure, printing, mount and frame, are simply "middling." Hence we are utterly indifferent as to their future fate. Why are they entirely lacking in interest, in the general absence of any positive conspicuous defect, you ask ? I reply, the worker in his so-called selection has exactly failed to select. He has taken things as they are. Selection surely implies rejection as well as acceptance. In the cases before us it has been all acceptance and no rejection. Nay, rather, may we not say that the general tendency, where it shows any thought at all, points to overcrowding rather than selection. Perhaps collection would be a better word. The "art of leaving out" in many cases, if known, is sternly ignored.

A large element in the commonplace is the presence of so much which is utterly unessential, immaterial, uninteresting, and hence discursive and generally weakening. It acts like a diluent. A teaspoonful of the best and purest and strongest whisky would have but a poor chance in a gallon of the purest "*aqua-pumpibus*," negative and innocent as that diluent might be.

2. Next comes *indefiniteness.*—By this I do not refer in any way to the method of producing the out-of-focus or so-called fuzzygraph method of working. The indefiniteness here indicated is that due to lack of definite aim or intention. This is the man who "aims at *nothing* and hits *it.*"

We are assisted to recognise this class of work when it appears with such delightfully bewildering and vague titles as "a study," "a nocturn," "an effect." The only, if any, effect generally produced is that of bewildered inquiry, or perhaps a reminder of some recent puzzle picture, subscribed "Find the dog, the policeman, and the baby."

Impressionism may be all very well in its proper place, provided always that the artist has an impression and some reasonable power of expressing it. But if the would-be impressionist desires to snatch applause by feeble imitation, or shelter his incompetence under vague titles, then he is in no way a true friend to the progress of photographic art.

The third place may be assigned to the defects due to *imitation.* The old saw which says that "imitation is the sincerest form of flattery" requires its "teeth setting" more in a line with actual fact. Experience seems to show that it is only those seeking spurious greatness in the cloud of dust they raise who find any acceptable flattery in the mimicry of a tail of followers, who, in turn, having no ideas of their own, are ready and willing to accept such ideas of their leaders as require the least, if any, effort to assimilate or digest.

It may well be doubted if any one who has thoughts, methods, or ideas of his own of any real value would accept on any terms the fulsome flattery of brainless imitation.

Would Shakespeare, Milton, or Tennyson, Reynolds. Constable, or Turner, have turned aside one hair's breadth to win a following of those who at best could only accentuate the defects of their leaders, and dilute beyond recognition their choicest merits. We may look and look in vain for any great artist in form, colour, song, or stone who has wrought his way to lasting greatness by imitation, such as is not altogether unknown by those who are eager to be dubbed photographic artists. Earnest, conscientious, and laborious study and analysis of the greatest works of the greatest men is no doubt of inestimable service to those who aspire to be their compeers, but true study points to principles rather than rules, results rather than methods. The student will be as anxious to avoid the semblance of imitation as he is desirous of reaching, if not outstripping, the triumphs of the masters who inspire him ; at the same time there will be an equal anxiety to make his work his own beyond the chance of merit it may possess being suspected of having been filched, or even borrowed, from the work of another. Much has been said, sometimes with truth and sense, and sometimes otherwise, on the subject of schools in photography. The pages of the history of painting teach us that "schools" are not to be manufactured at the whim and fancy of individuals. The causes at work were deeper seated and more fruitful than the passing popularity of an eccentricity or novelty. Furthermore, this difference between painters and photographers seems to lie on the surface. Whereas among the schools of painters each and all profess (and practise with varying degrees of truth) to study in and appeal to Nature—each school professing itself to be a more faithful exponent of Nature than the others, and in that sense are all impressionists—while, on the other hand, photographers, with an equally charming candour, one and all profess to study in and appeal to the same great school, Nature ; yet it would seem as though not a few were content to have their seeing and thinking second-hand, since, by their productions, their efforts show an industrious and not always unsuccessful effort at imitating the productions of each other.

4. *An inversion of the means and the end* must be held in part responsible for some misspent energy. An all-consuming anxiety to display to its utmost limits the possibilities of some instrument, the capabilities of some process, is a terrible temptation to many. Microscopic definition, biting sharpness, topographical precision, are phrases that have had their day and due regard. The transitional phase of differential focus is passing into further development of astigmatic distortion, or the suppression of definition by diffraction.

In those of an independent or experimental turn of mind their means may, and do at times, produce results which are not only extremely interesting, but also have a value as being expressions of a personality, but the counterbalancing disadvantages come *pari passu.* No sooner does one see a success snatched by some pioneer, but it is quickly imitated and diluted to such an extent that its virtues, even though few, are ignored, while its defects, no matter how many, are each and all repeated, until the unfortunate founder or leader of the school is saddened by finding that the world only sees his excellences or his multiplied defects.

The "fatal facility" of production tempts the great unthinking crowd to rush headlong down the course of destruction, leaving in their trail "wrecks and ruins" of wasted material. Now do they rush for the pictorial crown through *f*/64 of a highly corrected symmetrical doublet, now through a pinhole, now it is a spectacle lens, now an astigmatic lens. Having tried and found wanting any and every lens, and finally no lens at all, inspiration whispers, "Try a new printing process." Thus from chocolate-box-lid polish and gloss to roughest sand-paper is but a step. In each and every case an anxiety to display the means, rather than use the means according to the end desired, meets us again and again, and accounts for some proportion of the pictorial failures.

5. Lastly, some small place must be found for the failures due to *misdirected rivalry*. That a certain picture obtains a measure of notice is enough to set some at work to outstrip this picture by some slight advance either in subject, pose, lighting, or other method or means employed. The results of such rivalry must of necessity be unhealthy, as being the product of jealousy and imitation. All thinking art workers are agreed that the first quality of success is that the work attempted shall be felt worthy of the effort expended on it for its own sake. In other words, if a man's heart is not in his work there will be very little art in it. Obviously then, where one attempts to imitate and rival the productions of another, it is not a case of true affection, but the green-eyed monster that is secretly at work.

To sum up briefly, our inquiry seems to point to a handful of causes tending to produce work which, if not distinctly and definitely failures, are undoubtedly not successes. Let us go, in imagination, five times round the walls of a photographic exhibition. On each journey we shall weed out such pictures (or rather prints) as show the following shortcomings :—

1. The commonplace, due either to overcrowding of entirely extraneous, uninteresting, unessential elements. For the most part, if they are not positively offensive, they are absolutely uninteresting, dull, and characterless. They are "*the jelly-fish order*."

2. The indefinite or meaningless, that have nothing to say, and say it in silent eloquence. Their result, if any, is only to irritate. These are "*the penny puzzle card order*."

3. The feeble imitation class, wherein what little excellence (often difficult to find) has been obtained by other than honest, straightforward, individual, and personal work. These we may dub the "*petty larceny class*."

4. Means *v.* end, where the worker is anxious to display his dexterity in the use of his tools, perhaps with the hope that, as "fine feathers make apparently fine birds," so possibly artfulness may pass current for art. Let us call these "*the conjuring trick class*."

5. Rivalry, where one worker endeavours to build a fame upon the head of another worker, not because he cares about the subject, but because he is anxious to try and make himself the larger by ungenerously belittling another probably more modest worker. As it is not easy to find a name for these, perhaps we may best pass them over as the "*nameless unworthies*."

Having removed, gently but firmly, the foregoing five siftings, it may be reasonably hoped that whatever, if any, are now left will have suffered no loss, but gain rather by having passed into "Standard Six."

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

12,590. Harry William Cox, 323, High Holborn, London, "Improvements in Vitrifying Photographic Prints on Glass, Metal, Porcelain, China, and like substances."—*June 27th*, 1893.

12,621. George Ives Spalding, 53, Chancery Lane, London, "Improvements in Photographic Cameras."—*June 27th*, 1893.

12,633. Edward Molyneux Ashley, 46, Lincoln's Inn Fields, London, "Improvements in Apparatus for Vignetting Photographic Prints."—*June 27th*, 1893.

12,655. Archibald Campbell Rettie, 41, Reform Street, Dundee, "Improvements in Apparatus for Trimming Photographs."—*June 28th*, 1893.

12,734. William Thomson, Royal Institution Laboratory, Manchester, "An Appliance for Washing Photographic Prints and Plates."—*June 29th*, 1893.

12,840. Leon Auguste Marion, Henri Guibout, George Bishop, Frank Bishop, and John Pattinson Kirk, 22, Soho Square, London, "Improvements in Apparatus for Storing and Exhibiting Transparent Pictures, Photographic Negatives, or Positives and the like."—*June 30th*, 1893.

12,860. Hans Heinrich von Hochberg, Prince of Pless, 47, Lincoln's Inn Fields, London, "Improvements in Photographic Cameras."—*June 30th*, 1893.

PROCEEDINGS OF SOCIETIES.

The Photographic Society of Japan.

The annual meeting of the Society was held at the Seiyoken, Uyeno, on Saturday, May 20th, at 5 p.m., Prof. D. Kikuchi, M.A., in the chair.

The minutes of the last regular meeting having been read, the Secretaries were called on for their report, and read the following :—

"Your Secretaries have again to report the successful working of the Society for a year. There are now 171 names on the list of members. It has been found that the plan of holding monthly meetings at a fixed time and place has worked very well. There have been more meetings than in former years, and the attendance has been better than it was. It would take too long a time even to enumerate all the processes that have been demonstrated or discussed, the apparatus that has been shown, &c. It is enough to say that those who have attended the meetings regularly can have no excuse for being behind the photographers of other nations, in any matter connected with the technical side of photography. There has been a large increase in the number of amateur photographers in the country, and it is pleasant to note the earnestness displayed by those who take to the use of the camera with no view of making a money profit by it. By far the most important event of the year, for the Society, has been the opening of the Exhibition that now surrounds us. It cannot be but that photographers in this country, whether professional or amateur, will profit by seeing the best pictorial photographic work produced by any other countries in the world. Thanks are certainly due to the Camera Club of London, and particularly to Messrs. George Davison and Andrew Pringle, for sending us this magnificent Exhibition. We have to record with deep sorrow the death of Dr. G. Wagener during the past year."

After the meeting some forty to fifty members sat down to dinner in the large room of the Seiyoken.

Prof. D. KIKUCHI, as chairman, proposed success to the Society, and Dr. DIVERS, as vice-chairman, proposed the health of Mr. G. Henry and Mr. E. A. Hornell, to whose untiring energy for several days was due the excellent way in which the photographs were hung.

Mr. HORNELL, in replying, said that, speaking as an artist, he considered the work of Japanese photographers quite up to that shown at the present Exhibition. He said some very bitter things about the Exhibition of Oil Paintings being held next door to that of the Photography, as also did Mr. HENRY.

Various other speeches were made, and after dinner Mr. MILNE showed the slides he was about to exhibit in America on behalf of the Photographic Society of Japan. Taking it all through, the evening was a great success.

A monthly meeting of the Society was held on Friday, June 2nd, Mr. EDMUND R. HOLMES in the chair.

Messrs. BRADFISH and PIERCE had sent in some ready sensitised paper of two different kinds. One had a polished surface, and appeared to be a gelatino-chloride paper; the other had a matt surface.

Mr. K. ARITO was able to state that the paper was in no way discoloured, so that there was evidence of its good keeping qualities, and that it printed brightly and clearly. He had not, however, had time yet to tone any proofs.

Mr. I. TANAKA was instructed to experiment with the paper and to report his results to the next meeting.

Work done by the anastigmatic lens of Carl Zeiss, of Jena, was shown. The examples showed a most remarkable uniformity of definition from the centre to the extreme corners of the prints.

Mr. W. K. BURTON explained that these lenses were of large angular aperture, of flat field, and, at the same time, without astigmatism. There were various lenses that combined any two of these qualities, but, so far as he knew, this was the first that combined the three. The form of the Zeiss anastigmatics, even of large angular aperture, was such—being mounted in a short tube—that they could be used as wide angle lenses if stopped down. He would, however, be in a position to report more fully to the Society on these lenses in a month or two.

There was a discussion as to the manner of disposal of the donation made to the Society by H.I.M. the Empress on the event of her visit to the Exhibition, there being a general feeling that this money should not go into the ordinary funds of the Society, but should be used to provide some permanent memorial of the visit. It was eventually decided that the money should be used to pay for the striking of a small silver medal to commemorate the event, and to be presented to each member of the Society.

HACKNEY PHOTOGRAPHIC SOCIETY.

THE weekly meeting was held last Tuesday, Mr. PUTTOCK in the chair. Messrs. Rita, Low, Fort, and Dr. Harris were duly elected members. The popularity of the Society was truly demonstrated, as application for membership was made from Burmah.

Messrs. T. H. Smith, Dean, Gosling, Hudson, and Roofe showed work.

The HON. SECRETARY then showed Spratt Brothers' new camera stand. It was easily set up, the principal advantage being that, in place of screws at the first joint, it automatically locked and fixed itself.

Mr. GOSLING showed a view-finder which he had fixed in a small black box. The image could be seen in any light clearly.

Mr. ROOFE asked: Could halation be reduced in any way?

Mr. BECKETT thought methylated spirit rubbed on the negative with wash-leather would do it tolerably.

Mr. CROSS showed a negative which he had intensified, but which was much stained. The general opinion was that it was not thoroughly fixed.

Mr. NUNN asked if halation was not sometimes caused by stopping down.

Mr. BECKETT suggested that halation was not shown so much with a large stop, because "camera fog" was more evenly diffused.

From the question-box: "How to obtain brown tones on lantern plates?"

Various replies were given, such as using printing-out lantern plates, "Alphas," using carbonate of ammonia.

A good reducer was asked for, and that given by Mr. Howard Farmer was recommended.

Mr. ROOFE asked what to do to avoid metallic deposit on plates.

The HON. SECRETARY said methylated spirits would reduce it, and advocated for old plates full exposure, and less alkali than usual.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, July 3rd, at Hanover Hall, Hanover Park, Peckham.—The President, Mr. F. W. EDWARDS, in the Chair.

AT the conclusion of the formal business and the announcement of additions to the library, Mr. W. J. BELTON gave a demonstration of the manipulation of the Paget print-out lantern plates and opals. He explained the various stages in a very lucid and able manner. For printing the opals in ordinary printing frames, he showed a simple cardboard mask and frame, which the Paget Company were placing in the market for sale for a few pence. He also showed a frame specially constructed for printing the opals, and gave the formulæ of the toning and fixing baths (both combined and separate) which he used. At the conclusion of the demonstration the results were passed round, and the lantern slides shown in the Society's lantern.

During the course of the evening, the PRESIDENT, on behalf of the Royal Humane Society, presented Mr. Charles Farrant, one of the members, with a testimonial for saving life. It appeared that, on May 25th last, Mr. Farrant, in company with another member, were photographing along the banks of the Thames at Greenwich, and noticed some children playing on one of the landing stages. Thinking they would with but little arrangement make a good picture, Mr. Farrant and his friend proceeded to get his camera ready, when all of a sudden a cry for help was raised, and it was seen that a lad was fast being carried out into mid-stream. Without stopping to divest himself of any of his apparel, Mr. Farrant swam to the rescue, and succeeded in bringing the boy safe to land.

Attendance, 48.

The Society will hold their fifth annual Exhibition at the Peckham Public Hall, Rye Lane, Peckham, S.E., on the 7th, 8th, 9th, 10th, and 11th November next. In addition to the members' classes, there will be open classes for the following:—Medalled pictures, medalled lantern slides, pictures that have not received any award, lantern slides. It is understood that the number of pictures and slides which any exhibitor may send in will be limited.

Brixton and Clapham Camera Club.

At the last meeting of the above Club, held on Tuesday, July 4th (Dr. J. Reynolds, F.R.G.S., in the chair), it was decided to afford members systematic assistance in the more elementary principles of photography. With this object in view the Club elected a Committee of Instruction, consisting of six members, each member of which will give the first half-hour of each general meeting for the purpose of answering any questions on elementary photography that may be submitted to him. A Committee was also formed for the criticism of negatives and prints produced by the less-experienced members. Any one will now have an opportunity of submitting his work to the Committee, who will report as to the composition, development, and exposure of the negatives; also on the development, printing, toning, and mounting of the prints. In the event of lantern slides being submitted for criticism, it will be necessary in every case for the member to furnish a description of the scene, the nature of the process by which the slide was produced—*i.e.*, collodion, gelatine, &c.—exposure, development, and mode of toning; also to submit the negative from which the slide was produced.

As soon as the usual business of the Club had been transacted, the President gave a short but interesting description of some of the extinct monsters that inhabited the earth in the pre-historic period. The description was illustrated by some beautiful lantern-slides which were very kindly lent for the occasion by the Rev. H. N. Hutchinson, B.A., F.G.S., some of whose palæontological and geological researches are embodied in his works on "Extinct Monsters," "The Autobiography of the Earth," &c., &c.

At the conclusion of the description a cordial vote of thanks was passed both to the lecturer and to the Rev. Mr. Hutchinson.

Bath Photographic Society.

On Saturday, the 24th ult., the members responded to an invitation from Dr. Sudlow to revisit Castle Combe, by general consent the most picturesque village and manor in the district. Between twenty and thirty ladies and gentlemen left the city at noon, travelling by way of Batheaston and Bannerdown heights to Colerne, where a brief halt was made to inspect this quaint but apparently prosperous old village. Resuming the journey through Ford, Castle Combe was safely reached in the early afternoon, and where the doctor was waiting to familiarise his visitors with the hospitality of the Dower House, and pilot them to the most favoured selections of photographic picturesqueness. Camera practice was diligently pursued for fully three hours. Tea was afterwards served on the lawn at Dr. Sudlow's residence, and subsequently some photographic groups were taken to commemorate the occasion. The President of the Society and party then reluctantly took leave of their host and hostess, making the return journey through Pickwick and Box.

Ashton-under-Lyne Photographic Society.

Rambles, 1893.

July 15th.—To Chew Brook. Leader, C. E. Redfern, Esq. Wagonettes will leave the Society's Rooms, Henry Square, at 1.30 prompt. Tickets 1s. 6d. each, to be had at the Rooms or from the Secretary up to Wednesday, July 12th. Mr. Carrodus, from the Technical School, has promised to accompany the party, and give the members any assistance he can in the choice of pictures, &c.

July 29th.—Ramble to Liverpool, &c. Leader, Charles Lord, Esq. Further particulars later.

ANSWERS TO CORRESPONDENTS.

⁂ In consequence of pressure upon our space, this week's "Answers to Correspondents" are held over.

PHOTOGRAPHY AS A GUIDE TO ARTISTS.

PHOTOGRAPHY can not only show up impostors and discover new stars, unravel forgeries, and draw wonderful plans from the height of a balloon, read the vibrations of the wings of an insect, and control the movements of an engine, but it also extends its aid to æsthetics.

A tree can no longer be painted from memory. Photographic views are so common that the painter must keep to these "quotations from Nature." The sacred text is so well known that any artist who dares change one single word is at once shown to be at fault.

Compare Vernet's horses, with all four legs outstretched in the classical attitude of a hare on the spit, with Merrit's galloping chargers, every hoof under the body, and ask yourself whence comes the difference in the representation of the same movement. It is because photography proves the ignorance of most painters of horses. A horse has scarcely ever galloped in a picture as it really does on our meadows or our roads.

But photography has revolutionised art not only with regard to *outline*, but also in *perspective*. It not only modifies the painter's sight, but it very often does away with the painter himself altogether.

However, everything that photography produces is not necessarily correct. Take a galloping horse, for instance. In Muybridge's analysis of this movement certain attitudes will be found which, far from indicating rapid movement, seem to portray absolute rest. Movement is the rapid succession of an infinity of different attitudes, and, therefore, the representation of movement can only be the result of these attitudes. The artist must *select* the proper attitude.

A photographer may be an artist. If not in the interpretation, at least in the selection of his subjects, and by his power of selection alone he can impress his own personality on the work done by the sun on the sensitive plate.—*Extracts from Revue des Deux Mondes.*

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1820. JULY 21, 1893.

NOTES.

PHOTOGRAPHIC journalism was well to the front last week at the Plymouth Convention. The PHOTOGRAPHIC NEWS, the *British Journal*, the *Amateur Photographer*, *Photography*, and the *Photographic Review of Reviews* being each represented by its editor. This is as it should be.

THE photographic tourist is being well catered for just now, not only in the matter of apparatus, but his journeyings are being rendered easy and cheap by the enterprise of numerous agencies. The last scheme of the kind which has come under our notice bears the title of Amateur Photographers' Camera Party to Belgium, Bank Holiday, 1893, under the guidance of Mr. G. A. T. Middleton, from whom a prospectus can be obtained by addressing him at 42, Bolingbroke Grove, Wandsworth Common, S.W.

BANK HOLIDAY might almost have been left out of consideration, for it lasts but one day, and no one can do Belgium in twenty-four hours. As a matter of fact, the proposed tour is to extend from Wednesday, August 2nd, to Thursday, the 10th, and it will cover visits to most of the important places in the country. At the various hotels, dark rooms for changing plates will be found, and other conveniences will be provided. We wish the tourists every success.

MESSRS. PERCY LUND & Co. have forwarded to us a sample of a new gelatine which they have introduced for collotype work. It is of French manufacture, and is guaranteed to be a regular and reliable article; moreover its price is only eighteenpence per lb. The same firm have issued a price list of various articles used in process work, and we note specially that they make a feature of lined screens. We have had many inquiries as to where such screens can be obtained, and are glad to see that an English firm is producing them.

IT has often been remarked that the photo-mechanical process-block has killed wood-engraving, and if this be not wholly true, it has certainly had the effect of taking an immense amount of work out of the wood-engraver's hands. Most engravers have endeavoured to meet the evil face to face by combining process work with their normal employment; but those who have kept on the old lines, and refused to recognise the new, have had reason to repent their apathy. Only last week a very old firm of engravers appeared in the *Gazette*, and the reason of their failure was partly attributed to the march of the camera men.

IF photography has served wood-engraving a bad turn, it has done more evil to the steel engraver; for photogravure has almost completely knocked him on the head. The best engravers admit that photogravure is capable of reproducing subtle effects which are quite beyond the power of the most skilful workers in line. Those, therefore, who are the happy possessors of "proofs before letters," or even later "pulls" from good steel plates, may be certain that their property will considerably rise in value as time rolls on.

THE popularity of camera work has had a very good influence on illustrated journalism in doing away with that playful fancy which used to be the characteristic of hastily executed drawings. Portraits frequently did duty for various individuals at different times, to suit the convenience of the editor. This sort of thing will not do nowadays, when shop window photography has made the features of bishops and ballet girls, rope dancers and statesmen, so familiar to all men, that no average pictures of the kind are admissible.

But it would seem that, even now, there is something lacking, as a letter addressed last week by a Doctor of Divinity to the *Times* will show. He writes :—"I have bought and have been reading the wedding numbers of two of the oldest and best-known illustrated weekly journals, which contain full and excellent accounts of that happy event which has roused the enthusiasm of the nation. The engravings are profuse, and admirably executed. But I am perplexed, as many others must be. In the picture of the wedding breakfast at Buckingham Palace, one of the journals represents the Royal table as long and stretching down the whole length of the room, while the other shows us a great many small round tables at which the distinguished guests are seated. One naturally asks, Which picture gives the actual representation of the real scene? They cannot both be correct. Such is the uncertainty of even contemporary history, and yet from it the future historian of the nineteenth century will have to depend for his material. What will he think when he 'looks on this picture and on that'? 'Truth,' it would seem, has not yet ascended from 'the bottom of her well.'"

PHOTOGRAPHIC CONVENTION, 1893.
(*Taken with the "N. & G." Hand Camera by* J. Guardia.)

It would be well for contemporary history if a rule were made that every important national event should be photographed. Her Majesty the Queen has always been such a good patron of the art that she would be likely to countenance such a course were it proposed. In the meantime, the fact that anyone should write to the *Times* upon such a minor point as the arrangement of the table at a Royal wedding breakfast indicates a healthy desire for truth even in the matter of detail.

English photographers, who are generally within easy reach of everything required, and whose work comes to them with more or less regularity, have little idea of the fatigue and trouble involved in prosecuting work in countries where railway lines are few and far between, and where there are yet many uninhabited districts.

As a case in point, we may quote from a letter recently received from Mr. Charles H. Kerry, of George Street, Sydney, which accompanies a packet of first-rate photographs sent for our inspection. He writes as follows :—"In criticising these, kindly take into consideration the fact that most of them were procured under exceptional circumstances—plates very often being carried, both before and after exposure, hundreds of miles on pack-horses, subject to all sorts of risks of damage and variations of temperature, and frequently not developed for months."

The photographs cover a large number of subjects typical of Australian life in the bush and among the cattle ranches. There are also some curious pictures of caves taken by flash-light. One of these caves was discovered by Mr. Kerry himself last year while on an exploring trip, and it has since been opened up, and is now under Government control. Other pictures show the water spurting from Artesian bores — a method of obviating drought which has in many districts only recently been established. The pictures are highly creditable to the enterprising firm of Kerry & Co.

The "Cercle Artistique, Litteraire et Scientifique," of Antwerp, has established a photographic division, with the object of encouraging a taste for photography, and among its functions will be the organisation of exhibitions, conferences, &c. A movement of this kind is sadly needed in Belgium, and it is to be hoped that invitations will be extended to the judges of the civil law courts whenever the art side of photography is discussed or exhibitions held. The legal luminaries who compose the *Tribunal de première instance* lately decided, as we noted at the time, that photography, being a simple mechanical and chemical process, cannot be elevated into an art, and that the photographer exercised a purely commercial profession appertaining to that of a trader. There was, therefore, no copyright in a photographic portrait. In the current number of the *Photo-Journal* (Paris) an article on the subject treats this decision with the caustic raillery which French writers use so effectively.

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THE PHOTOGRAPHIC CONVENTION AT PLYMOUTH.

(*Concluded from page* 436.)

ALTHOUGH the members of the Convention had every reason after their experience on Tuesday to look forward to a wet week, their fears were happily groundless, for not another drop of rain fell upon Plymouth and its neighbourhood after the downpour in question. Indeed, the Plymouth Convention week will be long remembered as one of uninterrupted sunshine, barring the black Tuesday and its thunderstorm. When the sun shone out on Wednesday, members were rather loth to shut themselves up in the Conference room, and there was a general feeling, understood if not openly expressed, that it would be better to be out and about instead of attending to business. Clerks and others whose duties keep them within doors on sunny days know this feeling well, and we need not dilate upon it further. The President evidently felt it too, for with admirable despatch the necessary business was transacted and the boys and girls were allowed to run out and play, with the understanding that at noon each one must form an item of the Conventional group which was to be photographed at that hour. In the afternoon the members met once more for business, and in the evening they were the guests of the Mayor of Devonport as already reported.

It is to be regretted that the Royal wedding clashed with the Photographic Convention week; but it was just one of those clashings which could not be remedied. The Convention arrangements have to be made many months in advance, and the event could not easily be postponed. But it was unfortunate all the same, for the good people of Plymouth are very loyal, and their thoughts were of the Duke and Duchess of York rather than of photography, and they consequently did not patronise the Exhibition as they would have done had no other attraction existed. On the wedding-day itself, of course, no kind of business was done. There was a big review at Devonport, a monster meeting of school children on Plymouth Hoe—affording much work for hand cameras—a Royal salute from batteries and ships at one o'clock, and, lastly, fireworks and an aquatic bonfire to wind up the proceedings in the evening. Some of the Convention members elected to stay in the neighbourhood and to see these things, while others rigidly stuck to the programme, and the programme arranged for this day comprised an excursion to Totnes and Dartmouth. The *Western Morning News* printed an account of this excursion, from which we will now quote :—

"Very pleasant was the experience of the members of the Photographic Convention of the United Kingdom yesterday. A whole-day excursion to the ancient boroughs of Totnes and Dartmouth, and a meeting at Plymouth in the evening, was the programme. Excellent arrangements were made, and, as the weather was brilliant, the beautiful district visited was seen to the fullest advantage, and picture-making was carried on with every prospect of success. And the fact that both boroughs were most loyally celebrating the wedding of the Duke of York and Princess May added much to the interest of the day. The party, nearly seventy in number, started from Plymouth shortly after nine o'clock in the morning, and Totnes was reached about ten o'clock. The town looked gay with many flags, while in the streets were people, young and old, in holiday dress, making ready for the festivities. The keep of the old castle was ascended for the view, and many pictures were taken of the gate in Fore Street and of the church, whilst a score of photographers all in a row were seen intent on making pictures of the well-wooded island. Ere Totnes was left the children assembled on the Plain and sang the National Anthem, and some snap-shots of the scene were taken from the pedestal of the monument of Wills, the Australian explorer. Most enjoyable was the trip down the River Dart. It was made in a steam launch, and a roomy boat and two smaller ones towed by the launch. The English Rhine, with its grand woods sloping down to the water's edge, and with its many windings, was seen at its best. Little could be done photographically on the way down, but the hand camera was in constant use as soon as Dartmouth Harbour was reached. By H.M.S. *Britannia*, naval cadet training ship, the launch went slowly that photographs might be taken; then at greater speed the party proceeded to the harbour's mouth to view the castle so picturesquely situated on the shore. Yachts, some dressed rainbow fashion, and others in full sail, the Kingswear horse-ferry boat, and the high banks, with beautiful residences nestling among woods and gardens, and the castle itself, were the constant objects of members' attention. Returning from the harbour mouth, the party landed on the quay, and, proceeding to Bodley's Hotel, enjoyed a substantial luncheon, after which the President, Mr. George Mason, of Glasgow, in sympathy with the feelings of the company, gave expression to the hope that the Duke of York and his bride would be blessed with a long and happy life, and heartily thanked Mr. Barnston for acting as leader of so interesting an excursion. Then the party separated to photograph the Butter Walk (in one of the quaint houses in which King Charles II. held Court), the Church of St. Saviour, and scenes in the harbour; and the softening effect of a sea fog which drove over the hills above the town was seen. All were agreed that the borough and its land-locked harbour was truthfully described by the Queen on one of her visits as 'Beautiful Dartmouth.' The return to Plymouth was by train, *viâ* Kingswear and Newton, Torbay and Torquay affording charming views in the bright sunlight."

In the evening, notwithstanding their long and somewhat fatiguing day, the members again met at the Athenæum for the discussion of papers; but again there was an undefinable, uneasy, fidgetty feeling about, and, after one paper had been read and discussed, the others were taken as read, and, to everyone's relief, the company was dismissed, and, with a parting benediction from the President, gave themselves up to illuminations and fireworks.

On Friday, excursions were arranged for (1) Shaugh

Bridge, Dewerstone, and Bickleigh Vale, and (2) for Lydford, the usual dinner taking place in the evening; and, on Saturday—by which time many members had left Plymouth for their various homes—there was an excursion to Yelverton, Sheepstor, and Nosworthy Bridge. With this last outing, the Convention meeting for 1893 was brought to a pleasant termination. Its pleasurable features we have ventured to describe; but, with regard to the value of the work done by the meeting, our readers will be able to judge for themselves, as we shall print, either wholly or in part, most of the papers brought before it.

ON THE POWER OF COMPENSATING IN DEVELOPMENT FOR VARIATION IN EXPOSURE.

BY W. K. BURTON.

(*Continued from page* 444.)

A SET of experiments was now made to compare what I have called the "normal pyro and soda developer," in its results, with those of pyro and various proportions of bromide and ammonia. As I have said, I came to the conclusion that, vary the ammonia developer as I would, I could not get out as much with it as with soda without fog, and it is to be observed that the advent of fog is the limiting line of the action of any developer. The developer that is the most powerful reducer is not by any means of necessity the most efficient developer. It is that developer that can differentiate the most between bromide of silver that has, and that has not, been effected by light that is the most efficient.

B.

This series of experiments is intended to show the power of varying the effects of a uniform exposure, in a manner that would correspond to compensating for variations in exposure, with the ammonia developer, varying the quantities of each of the three constituents, and intensifying in certain cases. I think these experiments are conclusive as to the enormous control that we have over our results by variation in development.

The instructions were:—

"Develop all halves A with a developer containing ½ grain pryo, ½ grain bromide of ammonium, and 2½ minims of ammonia to each ounce. Develop either till slight fog shows itself, or till all action has, for some time, ceased.

"Develop all halves B with a developer containing 4 grains pyro, 4 grains bromide of ammonium, and 4 minims of ammonia to each ounce."

(It is to be observed that these quantities had been determined on from the results of previous experiments.)

"No. 168B, restrain one figure (*i.e.*, stop development when the density of No. 2B is the same as that of No. 1A).

"No. 169B, restrain two figures (*i.e.*, stop development when the density of *No. 3B* is the same as No. 1A).

"Nos. 170, 171, and 172B, restrain three figures.

"Nos. 173, 174, and 175B, restrain four figures.

"Nos. 176, 177, and 178B, restrain five figures.

"Nos. 179, 180, and 181B, restrain six figures.

"Nos. 182, 183, and 184B, restrain seven figures.

"Intensify Nos. 171, 174, 177, 180, and 183 with bichloride of mercury, followed with ammonia.

"Intensify Nos. 172, 175, 178, 181, and 184 with bichloride of mercury, followed by sulphite of soda."

Prints from the whole of this series are sent. It should be remarked that, in making all prints from these long sensitometer exposed plates, the effect of fog is, so far as possible, eliminated where it is present, by shading the unfogged half of the plate during development, so that the most transparent part of each half is, as nearly as possible, represented by the same tint.

It will be seen that, except in the case of No. 182, the curves of opacity, more or less, distinctly cross. The meaning of this, in the particular case referred to, is that, whereas the first strips of the A halves show greater opacity (and, consequently, print lighter) than the corresponding strips of the B halves, the last strips of the A halves show less opacity (and, consequently, print darker) than the corresponding strips of the B halves. In many cases the first strips of the B halves are not visible at all, whilst they are even printable in the A halves; nevertheless, the opacity of the last strips of the A halves is greater than that of the B halves.

It will be evident that, even in the case of No. 182, the curves of opacity would cross were the gradation of light longer. On account, however, of the fact that seven strips have been restrained in the case of B, the gradation of light capable of giving a developable result is only 1 to 128 in B, as compared with 1 to 8192 in the case of A.

Certain irregularities will be readily noticeable in these results. They arise from the difficulty in following exactly such instructions as "restrain 4, 5, or 6 strips." On this account the whole system of compensation in development, for variation of exposure and of varying the results with constant exposure, may be condemned by some. I shall only remind those who incline to do so that it is always a difficult matter in photography for even the most skilled to get the exact result they wish.

I considered that the last set of experiments described indicated powers to compensate, in development, for exposures varying as one to considerably more than 100 without resort to intensification, as one to several hundreds having resort to intensification, hence experiments to be described presently.

C.

These experiments were undertaken as introductory to a set of experiments with the ferrous oxalate developer. The instructions were as follows:—

"Prepare a saturated solution of oxalate of potash, and another of ferrous sulphate (each at a temperature of 65° F.), and make each acid enough, with sulphuric acid, to turn litmus paper quickly red.

"Develop all A halves with normal pyro and soda developer.

"Plate No. 17B, develop with one part iron solution to three parts oxalate solution.

"Plate No. 18, one part iron solution to four of oxalate.

"Plate No. 19, one part iron solution to six parts oxalate.

"Plate No. 20, one part iron solution to ten parts oxalate.

"All plates, both A and B to be developed either till slight fog appears, or till all action seems to have ceased for some time."

One result of these experiments is to show the very slight difference in the action of this developer, by variation in the ingredients, except in so far as time of development is concerned. As the developer becomes more diluted, the opacity throughout is slightly increased, but this is really because the fog point came comparatively earlier with the concentrated than with the dilute developers, and in each case development with oxalate had to be stopped because the fog point was reached.

Another thing it shows most strikingly is the inferiority of ferrous oxalate, at any rate without the addition of bromide, in the rendering of gradation. A print from plate No. 18 is sent to illustrate this. It will be seen that, in the half B, the greatest opacity is reached at about the eighth strip, after which reversal takes place, whereas, in the case of the half A (pyro developed) opacity increases nearly to the end of the line. Here both the opacity and density curves cross, and the density ratios are not the same.

D.

"Develop all halves A with 'normal pyro and soda developer.'

"All oxalate developers to be made up of one part of the iron solution, already mentioned, to four parts of oxalate of potash solution.

"No. 87B to be developed with the above normal ferrous oxalate solution, without bromide, till slight fog appears, or till all action appears to have ceased for some time.

"No. 88B to be developed with ferrous oxalate developer having one grain of bromide of potassium per ounce.

"No. 89B to be developed with ferrous oxalate developer having two grains of bromide of potassium per ounce.

"No. 90B to be developed with ferrous oxalate developer having four grains of bromide of potassium per ounce.

"No. 91B to be developed with ferrous oxalate developer having eight grains of bromide of potassium per ounce.

"No. 88B to have one strip restrained.

"No. 89B to have two strips restrained.

"No. 90B to have three strips restrained.

"No. 91B to have four strips restrained."

Prints are sent of the results of all these exposures. It will be seen that, by stopping development before it is complete, in cases where bromide has been added, we have the power of compensating for variation in developing, or of varying the results of constant development as in the case of the pyrogallol developer, though I am not prepared to say that the curves of either opacity or density actually cross in the cases under consideration.

E.

So far all experiments described have had for their object the alteration of the results with fixed exposure The next experiments were intended to investigate to what extent it was possible to get identical results with varying exposures. It was decided to rely on exposures in the camera for this, although some preliminary experiments were made with the sensitometer, using the long plates of glass.

It was soon found possible to produce, with exposures varying as much as 10 to 1, or even 20 to 1, negatives so nearly identical that they were both pronounced, by experienced photographers, good negatives, neither over nor under exposed, and that, moreover, were of such a nature that these photographers would not undertake to state which of the two negatives had had the longer exposure.

This was not enough, however. The experiments already described indicated the possibility of compensating for a variation of at least 1 to 100, and an attempt was made to systematically investigate the variation in the developer that was necessary to compensate for a given variation in exposure.

In the first place, exposures were made on a well-lighted landscape, varying in the ratios of 1, 2, 4, 8, 16, 32, 64, and 128, and attempts were made to discover the variation in the constituents of the developer that would give similar results with all these exposures.

For various reasons it was decided to keep the quantity of alkali (for reasons already stated ammonia was preferred) constant, whilst the quantities of pyro and of bromide were varied.

The first thing to do was to find the best relative quantities of pyro, ammonia, and bromide for the production of a normal negative by a normal exposure. A normal negative I can only define as the kind of negative that an experienced photographer wishes to get. This, I consider, must remain a matter of opinion or even of taste. A negative with opacities directly proportional to the light reflected by the different parts of the subject would be a perfect negative (apart from the rendering of colour values) if all printing processes were such that different parts of prints made by them reflected quantities of light proportionate to the opacity of the negative. This is not, so far as I know, the case for any printing process through any great range, and is far from being so in the case of many of them.

There is a still farther objection to the above definition of a perfect negative—namely, that no plate that is made has the power of producing such a negative with ranges of light nearly as great as are common in landscape work. We must of necessity make up our minds to sacrifice something either of the shadows or of the high lights, and it is purely a matter of taste which we prefer to sacrifice. A close examination of the photographic pictures recently sent from the Camera Club to Japan, for exhibition in the latter place, and representative of the most artistic work done in the Occident, seems to show me that workers of the most advanced school tend to turn out work that would have been spoken of as "under-exposed" some few years ago. That is to say, they see fit to abandon that so-called "golden rule"—in any way supremely idiotic—"take care of the shadows, and let the high-lights take care of themselves," and often, at least, prefer to sacrifice something in the shadows for the sake of the high-lights.

Normal exposure I shall define as the shortest exposure that will give the negative that the photographer wants to get. Normal developer might perhaps be defined as the best developer for producing this normal negative with normal exposure; but it looks rather like giving definitions in a circle.

Let me state here, parenthetically, that the prints you are to see just now are not by any means from negatives of the kind that I like to get. The negatives are altogether too hard. This was because I assumed that the developer that was "normal" for certain quarter-plates that I had been using would also be normal for 12 × 10 plates of the same brand, but a different number. This was not so, however. Of course I ought to have repeated the experiments, but I had already exposed over a gross of 12 × 10 plates, besides innumerable ¼-plates, and the time was getting short for putting my material in form, so I let the negatives slide as illustrating my point quite well enough.

To return, however, to the plates exposed in the ratios mentioned above, the ammonia was kept constant, and various multipliers of bromide and ammonia were tried for each doubling of the exposure.

My first impression was that the bromide ought to be increased in a rapider ratio than the pyro, but this seemed to be a mistake. It appeared that better results—that is to say, more uniform—were to be got by increasing the pyro and the bromide in the same ratios.

At first I tried using half as much again more pyro and bromide for each doubling of the exposure. That is to say, multiplying the quantity of pyro and of bromide each by $\frac{3}{2}$ for each doubling of the exposure. It was found that, with this increase of the quantities of chemicals mentioned, the contrast increased greatly with the increased exposures, and the negatives from those that had had the longest exposures appeared actually under-exposed as compared with those that had had the shorter exposures.

Next was tried using one-third as much again more pyro and bromide for each doubling of the exposure—that is to say, multiplying by $\frac{4}{3}$. The result was the same as in the last case, but to a less marked degree. This entirely knocked on the head a theory I had formed that the proper multiplier was probably $\sqrt{2}$.

(*To be continued.*)

* * *

A PORTION of the mace of the Coleman Street Ward was lost in the City on the occasion of the Duke and Duchess of York passing through the streets. Had not the missing article since been found, the Ward would still have had its counterfeit presentment in the shape of a photograph. For Mr. Freshfield has had a fancy for photographing the insignia of the various City parishes, and it is said he has a most unique collection of photographs of beadles' maces and other signs of parochial authority.

THE CONDITIONS DETERMINATIVE OF CHEMICAL CHANGE.

BY HENRY E. ARMSTRONG.

NOTWITHSTANDING the large amount of evidence now placed on record that substances commonly supposed to be capable of directly interacting do so only in the presence of at least one other substance, chemists do not appear to have arrived at any clear and consistent understanding of the conditions determinative of chemical change. As each fresh case is recorded, we continue to express surprise, overlooking the fact that Faraday, in his early "Experimental Researches in Electricity," clearly foresaw what the conditions were, and that but a slight extension of his generalisations is needed to frame a comprehensive theory. The subject is of such importance that it appears to me desirable to discuss the bearing of recent observations, especially as they to some extent necessitate the modification of views that I have expressed elsewhere, and in order to attract the attention of physicists, to whom we must now look for guidance in these matters.

Eight years ago, in the course of the discussion on Mr. H. B. Baker's communication on "Combustion in Dried Gases" (these Proceedings, 1885, 40), I defined chemical action as *reversed electrolysis;* in other words, in order that chemical action may take place, it is essential that the system operated on comprise an electrolyte. I then pointed out that as neither hydrogen nor oxygen was an electrolyte, a mixture of only these two gases should not be explosive; and, moreover, that as water was not an electrolyte, and it was scarcely probable that water and oxygen or hydrogen would form an electrolyte, it was difficult to understand how the presence of water pure and simple should be of influence in the case of a mixture of hydrogen and oxygen. This forecast has since been verified, the remarkable series of experiments carried out by V. Meyer in conjunction with Krause and Askenasy having clearly demonstrated that the formation of water from hydrogen and oxygen takes place at an irregular rate, and is, therefore, dependent on the presence of a something other than water—I imagine an acid impurity. But this is a consideration which has not yet received the proper attention, and it is, therefore, desirable to emphasise its importance by reference to other cases. Mr. Baker's recent preliminary note on the influence of moisture in promoting chemical action (*ante*, p. 229) affords several interesting examples:—Thus, he states that neither does hydrogen chloride combine with ammonia nor is nitric oxide oxydised by oxygen if moisture be excluded. In the former case the addition of water should suffice to determine the combination, as water and hydrogen chloride together form a "composite electrolyte" (*cf. Roy. Soc. Proc.*, 1886, No. 243, p. 268); as neither nitric oxide nor oxygen, however, forms a composite electrolyte with water, in this case water alone should not determine the occurrence of change; but if by the introduction of a trace of "impurity" in addition to water the presence of a composite electrolyte were secured (however high its resistance, owing to the smallness of the amount of "impurity"), action would set in, and when once commenced would proceed at an increasing rate, as nitric acid would be formed and the resistance of the electrolyte would consequently diminish. On this account it will be a task of exceeding difficulty to experimentally demonstrate that nitric oxide and oxygen are inactive in presence of water alone; but there can be no doubt that such must eventually be admitted to be the case, provided always that it is permissible to extrapolate Kohlrausch's observations and to conclude from them that *pure* water is a dielectric. The gradual increase in the rate of change here contemplated corresponds to the period of induction observed by Bunsen and Roscoe in their observations on the interaction of chlorine and hydrogen; the statement recently made by Bodenstein and V. Meyer (*Berichte*, 1893, 1146), that a mixture of chlorine and hydrogen behaves irregularly on exposure to light, is a valuable confirmation of Pringsheim's observations, and there is now no room for doubt that *pure* chlorine and hydrogen would be incapable of interacting. That no such irregularity is observed on heating iodine with hydrogen is not surprising, as hydrogen iodide would be formed from the very outset, and the electrolyte present would exert a minimum resistance almost at once. There is, however, a significant difference in the behaviour of the two mixtures, as hydrogen chloride should behave as hydrogen iodide, so that the problem is but incompletely solved. It may be that the one mixture was more nearly pure than the other, or it may be that the formation of hydrogen chloride from hydrogen and chlorine, under the influence of light, is dependent on the presence of some particular substance, together with water, and does not take place under the influence of any substance capable of forming a composite electrolyte with water; probably, however, the difference observed is chiefly due to the fact that only one of the actions is reversible under the conditions prevailing in the experiments.

Lastly, attention may be directed to the formation of sulphuric oxide from sulphurous oxide and oxygen, which is readily effected in presence of a catalyst, such as finely divided platinum; it cannot be supposed that the mere presence of platinum would condition the occurrence of change, and doubtless moisture is also necessary, the platinum or other catalyst but serving to promote the oxidation of the sulphurous oxide at a temperature considerably below that at which sulphuric oxide decomposes when heated. The action of surfaces generally may well be of this character, and the converse influence they so frequently exercise is probably an effect of the same order.

I have elsewhere raised the question whether there may not be a difference between actions taking place under the influence of low and of high electromotive forces—whether water, *per se*, may not be an electrolyte towards high, although not towards low, forces in the case of high temperature changes, or those brought about under the influence of the electric spark, for example. More attentive consideration of the subject has led me to think that this is not the case, and that we must treat high temperature changes such as occur and are involved in gaseous explosions in the same way as those occurring under ordinary conditions, and at low temperatures. From this point of view, Mr. Baker's statement that ammonia and hydrogen chloride do not combine is of extreme importance; the formation of ammonium chloride from these two compounds apparently involves no interchange, but a mere combination of two substances each endowed with considerable "residual affinity," and there is no reason why a distinction should be drawn between such a case and that afforded by, say, *atoms of hydrogen and oxygen*, the difference being, it would seem, one of degree only: in fact, I am no longer inclined to believe that atoms are capable of directly uniting. In all cases at least one function of the (composite) electrolyte would appear to be that of providing the necessary "mechanism" whereby the degradation or discharge of the energy is effected. If this argument be sound, its logical extension involves the conclusion that *pure* gases should be dielectrics—*i.e.*, that the passage of an electric discharge through a gas like that of an explosive wave through, say, a mixture of hydrogen and oxygen, can only take place if an electrolyte be present. Hitherto but little attention has been paid to the electric discharge in gases which have been highly purified. The peculiar behaviour of Tesla tubes referred to by Mr. Crooks in the discussion on Mr. Shenstone's paper on the formation of ozone is, perhaps, explicable from this point of view; it may be that the atmosphere within the tube does not become conducting until sufficient moisture and "impurity" have been projected from its sides. It is conceivable that a similar explanation may hold good in the case of Professor Schuster's observation, that it is possible to urge a current of low electromotive force across a gas subjected to a high electromotive force in itself insufficient to cause a discharge in the gas; the atomic dissociation hypothesis put forward in explanation of the phenomenon does not appear to me to be sufficient.

Finally the question arises, Can no line be drawn; are no two pure substances capable of combining or interacting — for example, water and sulphuric anhydride? There is little to guide us here, but it seems not unlikely that water has special properties which enable it to act directly; moreover—perhaps because—in such cases composite electrolytes would result. Ammonium chloride, so long as it remains solid, is clearly a compound of a different order, and it may well be that compounds of this type are in no case directly obtainable from their constituents, because, under the conditions under which they are formed, they cannot behave as electrolytes.

Apparently, in all cases in which molecular aggregates are formed—as in the case of solutions—we are dealing with dissociable and dissociating systems, and it is not improbable that we may ultimately find an explanation of the mechanism of such changes in this fact.

At present there is no information forthcoming whether simple electrolytes, such as fused silver chloride for example, will condition chemical change in the way that water does—whether, for instance, silver chloride will condition the formation of hydrogen chloride from chlorine and hydrogen, so that a gas battery might be constructed of these three substances.—*Journal of the Chemical Society.*

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JULY 21, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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THE PACKING OF PLATES.

NOW that the tourist season is commencing, the safe package of plates, and the still more important packing of the negatives to which a certain proportion of them will presently give birth, becomes a matter of serious import to many workers. The art of good packing is known to few, and some have regarded it almost as a gift from the gods. The ordinary servant has no knowledge of it whatever, and it is only now and then that one is met with who can do it without breaking, or causing to be broken in transit, half of the goods packed; for the real art of packing consists not so much in the mere act of placing the things so that they shall occupy a certain space as in calculating the strain which shall arise in this direction, or the stress in that, besides taking note of the disruption which may ensue when the box or other receptable is turned over and over, and dumped about by the railway porter.

We remember some time ago seeing in one of the papers a paragraph which professed to be a recipe to break stones, and it ran thus :—"The way to break stones is to enclose them in a box marked '*Glass*,' to send the said box for a few hundred miles by rail, when, at the end of the journey, the stones will be found reduced to the smallest possible fragments." There is an amount of sarcasm about this formula which indicates that its compiler has suffered grievously at the hands of a railway company. Possibly he is a photographer, and has had some valuable negatives reduced to "the smallest possible fragments," and this is his playful way of revenging himself upon the railway people after having failed to obtain more solid compensation.

It is true enough that railway and all other porters are clumsy. Their rough employment and the very strength of arm which gives their work its value are not compatible with that nice adjustment of the manual muscles which is the characteristic of a skilled worker. We must not expect too much from such material. But is the porter always at fault? Is not the breakage of plates and negatives more often due to careless packing? We have good reason to believe that this is the case, and we have ample opportunity of putting the matter to the test, for every week brings its supply of glass pictures to the editorial offices, packed very often in such inadequate fashion that what should be a lantern slide, or a negative, is a mass of splintered glass, which, at any rate on its arrival, is very tenderly handled. We have received more than one negative which has been merely wrapped in paper before being sent through the post. Others have arrived at our office enclosed between two bits of cardboard, and if they have escaped breakage by ordinary handling, they have succumbed to the obliterating stamp of the unconscious post-office clerk. A smashed plate reached us only a few days ago which had been sent in an ordinary dark slide; this had probably broken by vibration. With such evidence of faulty packing under our immediate notice, we can hardly blame a common carrier if goods entrusted to him under such conditions fail to reach their destination in a whole state.

Plate-makers are so alive to the necessity of careful packing that few breakages occur in the parcels which they send out, and, if the users of the plates were half as careful in the treatment of valuable negatives, they would not so often have to deplore a loss. The first essential is that each glass should be separated from its fellow either by a slip of card or a sheet of tissue-paper, and that they should not be free to move within their containing box. A package of plates treated thus and protected outside by corrugated paper will stand the ordinary wear and tear of railway transit without much fear of breakage. If the plates be very large, special precautions must be observed, for the risk of accident increases with the area of the plate, and we need hardly say that the loss is increased in the same proportion.

It is bad enough to lose by breakage unexposed plates; but, when these plates have seen light through the camera lens, they assume a fresh value, and many a good photographer, inexperienced in the art of packing, has had reason to mourn the loss of plates which have been costly to expose. Our own practice is to place the exposed plates face to face and to put a layer of soft paper between every couple so treated. The plates are then packed in half-dozens in red paper and returned to their original boxes. In the course of many years' experience and much travelling about, we have never yet broken a plate in transit. In sending a single negative by post, or by carrier, the best plan is to wrap it in soft paper and to bury it in sawdust, or fine shavings, in the middle of a wooden box. We would far rather trust a negative thus packed to the tender mercies of a railway porter than send it, less securely packed, by hand.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

The Double Anastigmat—Photographing very Fine Lines—The Tone of Platinotypes—The Restraining Action of Potassium Bromide—A Simple Combined Toning and Fixing Bath—Aluminium Flashlight.

The Double Anastigmat.

A NEW lens has been introduced by the well-known optician, C. P. Goerz, of Schoneberg, near Berlin, which is called the "Double Anastigmat," of which it is said that it gives flatness of field, with a larger aperture and greater rapidity than it was possible to obtain hitherto. The lens is an aplanatic lens—*i.e.*, it consists of two compound lenses of symmetrical adjustment—but it differs from most aplanatic lenses, inasmuch as each of the compound lenses is a cemented triple, which has been corrected separately for spherical and chromatic aberration and for astigmatism, so that each of them may be employed as a simple photographic lens. Dr. Miethe, a well-known expert in photographic optics, points out that the new lens is, in its kind, entirely different from the anastigmat constructed by Zeiss, the adjustment of which is not symmetrical, and which is not constructed after the aplanatic type. It is put forward, as a notable feature of the new lens, that its two components are placed so closely together that there is only just room between them for the diaphragm.

Photographing very Fine Lines.

In enlarging line negatives made on gelatino-bromide plates, difficulties are met with very often, even in cases where the enlargement required is of only ten times the diameter of the small negative. The lines of the enlargement tend to lose their sharpness, appearing with blurred edges. M. Victor Schumann, in commenting on this subject in the *Phot. Rundschau*, points out that for that reason the wet collodion plate is generally preferred to the gelatine plate in the case of line reproductions, the former giving sharper lines than the latter. Another advantage of the collodion plate is to be found in the fact that it may be intensified up to absolute opacity without interfering at all with the clearness of the image, whilst it is always difficult to intensify a gelatine negative to such a degree. Moreover it is impossible, as the author states, to develop a gelatine plate without producing fog. Even on negatives showing absolutely clear glass in the shadows, if examined under the microscope, a large quantity of reduced silver will be detected at those parts where the developer has apparently been without any action, this giving rise to the formation of a coarse grain as well as, in intensifying, to the staining of the negative at the parts represented by clear glass, if the process is not carried on very carefully. Herr Schumann mentions that he has succeeded in preparing gelatine plates which, apart from the fact that they are sensitive to light-rays of smallest wave length, give lines on an absolutely transparent ground, which up to their edges are perfectly impervious to light, and which, therefore, bear enlarging to an unusually high degree. The author has taken negatives which, even if enlarged one hundred times, are still available for measuring purposes.

The Tone of Platinotypes.

Prof. Alexander Lainer has found that in printing with platinotype paper prepared according to the formulæ of Pizzighelli and Hübl, the tone of the prints is influenced by the temperature and the concentration of the potassium oxalate solution with which the prints are developed, a higher temperature giving brownish tones, a lower one purer black tones. The difference as to the colour tone between a print developed at 80° C. and one developed at 40° C. is striking. In developing at a lower temperature also purer whites are obtained. By increasing the addition of oxalic acid in the developing solution, the colour tone of the prints is practically not influenced, the brownish tone in developing at a high temperature being not destroyed, whilst by diluting the developer with one half its bulk with water, a slight sepia tone is produced in the case of equally long exposure. To produce black tones the following procedure is recommended: 300 grammes of potassium oxalate and 10 grammes of oxalic acid are dissolved in 1,000 c.c. of well-water. For use, a quantity of this solution is heated up to 50° C.

The Restraining Action of Potassium Bromide.

In the *Phot. Correspondenz*, Dr. F. M. Eder points out that the restraining power of potassium bromide varies according to the developer used. The ferrous oxalate developer, for instance, is very sensitive to this action, a few drops of a 10 per cent. solution added to each 100 c.c. of the developer being sufficient to produce a great restraining effect in the case of normally exposed plates; if more of the bromide is added, greatly over-exposed plates may be properly developed. With the pyro and soda developer its action is not quite so intense, whilst with the pyro and ammonia developer, if a small quantity of bromide is added, the latter acts more as a fog preventer than as a restrainer. For over exposed plates, from 5 to 10 c.c. of a 10 per cent. bromide of potassium solution should be added, in this case, to each 100 c.c. of the developer. The ready-prepared hydroquinone and soda developer is less sensitive to the retarding action of bromide than pyro and soda; though, by the addition of a comparatively large quantity of the bromide the developer may be much retarded, it is more difficult to compensate for over-exposure than with pyro or ferrous oxalate. In this case it is preferable to use an old hydroquinone solution. With eikonogen and metol the bromide acts also as a fog preventer, but its retarding action in this case is by far less than with the above-mentioned developers. Very considerable over-exposures cannot well be corrected by the addition of bromide to metol and to amidol, nor may this successfully be done by the employment of an old, repeatedly used metol developer, since then, though the latter retards development, the negatives will not obtain the required density. The metol and amidol developer should, therefore, be used only in cases where subjects full of contrasts have been taken with short exposures.

A SIMPLE COMBINED TONING AND FIXING BATH.

According to Herr E. Valenta the following bath gives beautiful tones with most of the commercial chloride of silver emulsion papers :—

Distilled water	1,000 c.c.
Nitrate of lead	10 grammes
Hyposulphite of soda	200 „

to which is added before use,

Chloride of gold solution (1 : 100)	50 c.c.

The bath may be used as soon as it is prepared; the first prints, however, treated with it are of a less pleasing tone than those toned afterwards, so that it will be well to treat with it first a few unimportant prints. If the bath begins to work slowly and to produce double tones, it is best to replace it by a fresh one. Simplicity and cheapness are the main advantages of this toning and fixing bath.

ALUMINIUM FLASHLIGHT.

Professor Glasenapp emphatically advocates the use of aluminium in place of magnesium for the production of flashlight. He states that aluminium, if employed in the form of bronze powder, is equal to magnesium as a source of light in taking photographs by flashlight, and that it is much cheaper than the latter. The following mixture is recommended by the author :—

Aluminium powder	21, 7 parts by weight.
Sulphide of antimony	13, 8 „ „
Potassium chlorate	64, 5 „ „

In preparing this mixture the same precautions are to be taken as in the case of magnesium flashlight. As the rapidity of combustion of the above mixture $\frac{1}{7}$th of a second has been found out. Two grammes of the mixture were burnt in a small heap, 2 cm. long and 1 cm. wide. With regard to the chemical intensity the author has found, by exposing gelatine plates beneath a Warnerke actinometer to the light of the above mixture and to that of other mixtures prepared with magnesium, that by employing equal quantities of metal the aluminium light is superior to the magnesium light, though not very considerably. The speed of combustion is slower (about one-fifth of a second) if the following mixture is used :—

Aluminium powder	30 parts by weight.
Potassium chlorate	70 „ „

* * *

SOME POINTS IN CONNECTION WITH DEVELOPMENT.

BY C. H. BOTHAMLEY.

MR. BOTHAMLEY commenced his remarks by saying that it was very difficult to deal with the matter to which he proposed to direct his hearers' attention without trenching upon the subject-matter of other papers before the Congress. He wished to say a few words with regard to development and its relation to density. A friend of his made it a practice never to read any part of a scientific controversy until it had been well threshed out and brought to a conclusion—until, as his friend expressed it, "the dust had had time to settle." Now, with regard to this question of density in relation to development, although the matter was by no means brought to a settlement, he would play the part of Aquarius, and would endeavour to settle some of the dust which had been raised around the subject.

They all knew that Messrs. Hurter and Driffield, as well as Captain Abney, had recently done some remarkable experimental work with relation to photographic exposure; and although these workers did not wholly agree in the conclusions which they drew from their experiments, they certainly did agree in one very important point—namely, that the amount of silver deposit upon a photographic plate is settled, not by development, but by exposure. Hurter and Driffield hold that the silver deposited is in a homogeneous condition, while Abney is inclined to the belief that it must be regarded as heterogeneous. These are the only men who have gone thoroughly into the matter, and it is noteworthy that they are agreed upon the point referred to.

On the other hand, most photographers hold the belief that they can alter and control the amount of density by judicious development. Now, Hurter and Driffield use the word *density* perfectly correctly from a scientific point of view, but differing very much from the meaning generally attached to it by photographers. The experimenters referred to mean by *density* the amount of silver deposition in the film at a given point; while photographers use the word to denote the absorbing action of the light. In fact, the word which they want to express their meaning is *opacity*. We here see the folly of any art based on scientific principles adopting a loose nomenclature with which to express its ideas.

Hurter and Driffield's fundamental result is that the ratio of the densities corresponding to different amounts of light action cannot be altered by changes in the mode of development. So far as any quantitative evidence goes, that statement must at present be accepted as correct. Photographers say that they *can* alter *the gradations* of their negatives. There is really no *necessary* antagonism between the two statements.

At the outset you will probably admit that the way in which photographers as a rule estimate the gradations of their negatives is, at the best, somewhat rough and ready, and cannot claim any special degree of accuracy. What a photographer has in his mind when he talks about gradations is, in ninety-nine cases out of one hundred, *printing qualities*. Of course, this is the all-important point in actual practice, seeing that the negative is but a means to an end. Now, the printing qualities depend on the ratio of *the opacities* of the different parts of the negative, and it is quite possible for the ratios of the densities to remain constant, as Hurter and Driffield say they do, whilst the ratios of the opacities vary widely. It is not necessary to enter into a detailed explanation of the law that governs the relation between the quantity of an opaque substance, such as the silver in a negative, and the quantity of light that it absorbs; the law is a simple one. May I ask your attention to the following table?

First Case.

Thickness of the Silver Layer.	Ratios of the Densities.	Quantity of Light Transmitted.	Ratios of the Light Transmitted.
1	1	$\frac{1}{2}$	4
2	2	$\frac{1}{4}$	3
3	3	$\frac{1}{8}$	2
4	4	$\frac{1}{16}$	1

Second Case.

Thickness of the Silver Layer.	Ratios of the Densities.	Quantity of Light Transmitted.	Ratios of the Light Transmitted.
2	1	$\frac{1}{4}$	64
4	2	$\frac{1}{16}$	16
6	3	$\frac{1}{64}$	4
8	4	$\frac{1}{256}$	1

It appears that in the two cases the ratios of the densities are the same, but the ratios of the opacities—or, in other words, the printing qualities—differ widely, because the *absolute values* of the densities are different. The two cases represent the same negative, development in the second case being carried on longer, so that the quantity of silver deposited at any part of the negative is, in the second case, just twice as great as in the first.

What it seems to come to then is this, that, according to Hurter and Driffield, we cannot in development alter the *ratios* of the densities, but, by stopping the process at different stages, we do alter the *absolute values* of the densities, and thus very considerably alter the ratios of the opacities—that is to say, the printing quality.

It may be asked, however, how this explains the apparent effect of the usual modifications in the composition of the developer. The reply in the first place is, of course, that some of these modifications simply have the effect of making development slower, and thus making it easier to stop the process at any desired point.

It is, however, for a full discussion of the problem, essential to take into consideration a point that is often neglected. Is anyone prepared to contend that sufficient attention has hitherto been paid to the influence of general fog—a uniform deposit of silver all over the negative—in modifying the "gradations" and altering the printing qualities of a negative? We frequently meet with or hear the statement, "beautifully clear in the shadows," but how often is this an accurate statement of fact? How often does it represent inaccurate observation? It is very easy to be deceived by contrast; but if the plate is put in contact with white paper it will in the great majority of cases be found that there is really an appreciable deposit where there seemed to be no silver at all upon the negative when it was examined by transmitted light. The term "general fog" is here used in the ordinary sense to denote a uniform deposit all over the negative, produced by the action of the developer independently of any action of light.

Then comes the question, What is the effect of general fog on the ratios of the opacities, or, to use the common phrase, the "gradations"?

Since to add a constant quantity to the terms of a ratio diminishes the ratio, it is clear that the fog will lessen the ratios of the opacities, and thus tend to make the negative flatter or softer. The greater the amount of fog the smaller and smaller will the ratios become, or, in other words, the flatter or softer will the negatives be.

In all Hurter and Driffield's experiments the influence of fog was eliminated by subtracting the value of the fog from all the measurements before calculating the ratios. It is noteworthy that in almost all cases the fog value was altogether too distinct to be negligible. In actual practice, however, whatever fog there may be is not eliminated or removed, but exerts its influence all through the various uses to which the negative is put.

As a matter of fact very few of the developers commonly used can be allowed to act upon ordinary plates for four or five minutes without producing an appreciable amount of general fog. The amount of fog is increased by—

(1.) Increasing the proportion of alkali.
(2.) Increasing the concentration of the developer.
(3.) Reducing the proportion of bromide.
(4.) Prolonging the time of development.

Whilst, on the other hand, the amount of fog is reduced by—

(1.) Reducing the proportion of alkali.
(2.) Increasing the proportion of bromide.
(3.) Shortening the time of development.

The proportion of pyro does not seem to exert any marked influence in this respect. Diluting the developer acts in two ways: the dilution of itself tends to reduce the amount of fog, but the prolongation of development, necessitated by dilution, tends towards the production of fog.

When the photographer endeavours to compensate for over-exposure, he reduces the amount of alkali, and increases the amount of bromide, but, as we have just seen, these are modifications which tend to prevent the production of general fog, and consequently increase the contrasts of the negative. When, on the other hand, the negative is under-exposed, the proportion of alkali is increased, the proportion of bromide is reduced, and sometimes the developer is diluted; but all these modifications tend towards the production of fog and a consequent reduction of the contrasts of the negative. It is scarcely necessary to point out that so long as fog remains slight there is a tendency to continue development, and thus, as pointed out at the beginning, to increase the ratios of the opacities—that is, to increase the contrasts by increasing the absolute values of the densities. When, however, fog makes its appearance, there is a tendency to stop development at a stage when the absolute values of the densities are comparatively low, the ratios of the opacities are low, and the negative is "soft" in its gradations.

To sum up, it would seem that so far as present experimental evidence goes the photographer cannot by modifications in development alter the ratios of the densities of the silver deposit at different points; these are determined by the amount of light action. He can, however, and does, alter the ratios of the opacities, or, in other words, the printing qualities, (1) by stopping development at a particular stage, (2) by making such modifications in the mode of development as tend either to reduce the general fog and thus increase the contrasts, or to increase the amount of fog and thus lessen the contrasts. The two kinds of modifications are designed respectively to meet over-exposure and under-exposure.

ARTISTIC EXPRESSION WITH THE HAND CAMERA.

BY J. GUARDIA.

THE first half of this paper was devoted to the oft-discussed question of the relation between photography and art, and it was only in the second half that Mr. Guardia touched upon the matter indicated by the title which he had chosen for his discourse. We therefore quote the latter portion of the paper only.

In forming an estimate of photography as a means of artistic expression, and in accounting for the unfavourable attitude which the general body of artists preserves against us, the enormous disadvantages which artistic photographers have had to contend, and are still contending with, should not be lost sight of. These are disadvantages which, in the nature of things, could scarcely be avoided in the early days of the new art, and which are now being rapidly overcome, and will, no doubt, soon entirely disappear. The principal difficulties which retarded photography in its progress as a fine art were (1) the low sensitiveness to light of the materials employed, requiring long exposures, and (2) the inadequate nature and unmechanical construction of the apparatus used. The speed of plates has enormously increased within the last few years, and manufacturers are even now vying with each other to turn out plates of greater and greater sensitiveness. With regard to a more correct rendering of the different colours, however, much remains to be done. Celluloid films also promise considerable advantages over glass plates, though they are as yet scarcely perfect enough for the best work.

But it is the old apparatus which must bear the greater part of the blame for the low position which photography still occupies as an art. Lenses, it is true, have long been perfect enough, especially since the introduction of Jena glass. If the lenses generally used are of too short a focus, as undoubtedly is the case, the opticians are not to blame. In shutters, too, the photographer has been fortunate to secure the services of the highest mechanical skill; and though the modern shutter is a comparatively new creation (called into life by the increased sensitiveness of dry plates), it is already, both in speed and efficiency, well in advance of the present requirements of photography. With cameras, however, the case is very different. Designed originally by incompetent persons, they have remained to this day the evident production of cabinet-makers and carpenters, whose only improvements during fifty years may be said to be the substitution of the shaky bellows camera for its steady but ponderous sliding-box ancestor, and the addition of simple movements, like rising front and swing back. The same type of apparatus has been adhered to, not by a few, but by all makers, and this, not only in the early days when the slow processes employed demanded nothing better, but long after plates had reached a high degree of sensitiveness. For fifty years photographers have had to carry about bulky implements, necessitating the use of a strong stand, and requiring long delays for setting them up ready for work. What wonder, then, that photography never reached its proper province among the fine arts—*the representation of life in Nature*, with all its beautiful but evanescent phases and movement, which has only now become possible, thanks to the modern hand camera.

"Fine art," says Ruskin, "is that in which the hand, the head, and the heart of man go together;" what chance has the hand, the head, or the heart with a 15 by 12 field camera, and a tripod weighing five pounds? Before hand cameras were invented, what was the aspect of Nature as recorded by photography? A dead maze of trees, and fields, and buildings. The rivers and lakes showed no ripple; they were merely a mass of glaring white. The streets were deserted, and tenantless houses were but a mockery without reason. The beauty of cloud and atmosphere was unknown—was represented by acres of white paper. Here and there a group of soulless caricatures of human beings were, indeed, to be seen, all stuck up in constrained attitudes. Not breathing and moving and palpitating with life and energy, but either blurred out of all recognition or fixed in unnatural poses, like wax dolls glaring at nothing, "puppets without muscles, and silhouettes without substance." Such was the world as depicted by the slow exposures of the old photography—an inane reiteration of topographical notes, or a spiritless multitude of lay figures in Sunday clothes.

But, with the advent of the modern hand camera, all this has changed. The ripple on the water can be seen and almost heard; clouds, fleecy or heavy, float across the sky; the elegant movements of the swiftest animals are recorded; bustling crowds of men, women, and children are shown to us, picturesque in their ever-varying unconscious attitudes in the course of their daily occupations their toil, or their play. The traveller to distant countries will no longer bring uninteresting records of ruins and desert solitudes, but animated pictures of the life, the troubles, and pleasures of the whole human race, from the tropics to the polar regions. A hand camera, ever ready, easy to carry, and able to withstand all changes of climate and vicissitudes of travel, will help photography to outstrip the other arts in the representation of all the evanescent phenomena of Nature, in making nations know and understand one another, in furthering the brotherhood and union of the human race. Useful to everyone in indelibly recording what he sees, it will help the stay-at-home to portray his friends in familiar and natural attitudes, the traveller to bring back living records of his wanderings, the artist to show us Nature as he sees it, deprived of its ugliness, and with its beauty enhanced.

This then is the true sphere of photography as a fine art. Creation is impossible to us; let us therefore leave this to other arts. But we still have the great power of *selection*, and of showing our good taste and artistic feeling. Let us cultivate this to the highest pitch we can attain, and employ it in the representation of life, and movement, and beauty of form in Nature; a field large enough, and one which the other arts cannot touch. We shall then be doing good and useful work, work that will live.

The course which we should follow in our aim towards artistic perfection is, I think, clear enough, but to follow it means hard work.

Let us be true to ourselves, always willing to learn from others, but doing what we honestly think right, whatever the uneducated multitude may say.

Let us study Nature, for it is the fountain-head of all beauty.

Let us cultivate art that we may improve our good taste.

There is no reason whatever why we should not photograph everything that interests us, whether it is a picture or not; but let us acquire sufficient practice and knowledge to be able to see and secure a beautiful pose or subject whenever Nature unexpectedly presents it to us in the course of our rambles. In order to do this with certainty, we must not only use good tools, but must gain great skill in using them. But let us never forget that tools and skill are but means to an end.

I should like to see the day when a photographer only shows *as pictures* one or two of the very best photographs he has taken during the year; when he does his utmost to make these as perfect as possible, by carefully enlarging them, if necessary, by printing, mounting, &c.

Let us have exhibitions of such selected work, let it be judged by *trained* artists, and then we shall stand a chance of proving that photography can be made a fine art, for artistic expression is possible by means of the hand camera.

In the discussion which followed the reading of this paper, Mr. Werner submitted that, whilst photography is a fine art, photographers in the past had not been artists. —Mr. Keene, of Derby, defended the use of plate marks for photographs.—Mr. Ashman recalled to Mr. Guardia the fact that twenty years ago, with the old slow methods and clumsy apparatus, artistic effects were produced. Much was now said about the artistic side of photography, and some believed that any photographer two years old was quite out of it. He failed to see it.—Mr. Traill Taylor appealed to Mr. Guardia to strike out a statement in his paper that before hand cameras were invented the aspect of Nature as recorded by photography was "a dead maze of trees and fields and buildings. The rivers and lakes showed no ripple; they were merely a mass of glaring white. The streets were deserted, and tenantless houses were but a mockery without reason. The beauty of cloud and atmosphere was unknown—was represented by acres of white paper. Here and there a group of soulless caricatures of human beings were, indeed, to be seen, all stuck up in constrained attitudes. Not breathing and moving and palpitating with life and energy, but either blurred out of all recognition or fixed in unnatural poses, like wax dolls glaring at nothing. 'Puppets without muscles, and silhouettes without substance.' Such was the world as depicted by the slow exposures of the old photography—an inane reiteration of topographical notes, or a spiritless multitude of lay figures in Sunday clothes." —Mr. Mowl also declared that some of the old work was as good as any now produced, and charged amateurs with using little intelligence in pressing the button.—Mr. Cembrano claimed that it required a good deal of intelligence to know when to press the button.—Dr. Mitchell, Mr. Birt Acres, and Mr. Herbert Fry, and the President continued the discussion.—Mr. Guardia, responding to a vote of thanks, said the old photographers who had done artistic work were those who, ahead of their brethren, used methods which were now common.

THE MANUFACTURE OF GELATINE DRY PLATES.

BY J. DESIRÉ ENGLAND.

I DO not wish to trouble you to night with any history of the gelatino-bromide process, but my aim will be to make this paper as practical as possible, and if no very great rapidity of plates is required I think you will find the process of manufacture a very simple one, and very interesting, especially to those who have any knowledge of chemistry. There is, of course, as you all know, a very wide range in the sensitiveness of plates, and such sensitiveness depends upon the formula and method of making, connected with many small details which have to be observed. Let us first consider the nature of the emulsion which is to be used in the coating of plates. An emulsion may consist of either bromide of silver or a mixture of bromide and iodide in a very fine state of division, suspended in a solution of gelatine.

The preparation of the emulsion may be divided into three stages, the mixing, the emulsification, and the washing. The gelatine employed is of the first importance, and without a suitable sample success is impossible. In the first stage a soft gelatine should be used, say, Nelson's No. 1, but for adding afterwards a harder kind, such as Heinrich's or Drescher's, must be employed. With regard to the bromide of potassium, the iodide of potassium, and nitrate of silver, they must be pure, each make of the different chemicals producing a somewhat different result. There are two or three methods which may be employed in making the emulsion. We can, after mixing, to produce sensitiveness, keep the emulsion stewing for from one to five days or more at a temperature of from 90° to 95°, or by raising the temperature and boiling the same result may be obtained in an hour or two, or even sooner by the ammonia method. The method of stewing at a temperature of 90° to 95° was, I believe, one of the early methods, Bennett's process. I shall now show you how to make an emulsion by the boiling process, the formula for which is as follows :—

No. 1.

Potassium bromide	90 grains.
Potassium iodide	3 ,,
Gelatine (soft)	20 ,,
Water	1½ ounces.
Hydrochloric acid	2 minims.

No. 2.

Silver nitrate	120 grains.
Distilled water	2½ ounces.

No. 3.

Gelatine (hard)	150 grains.

The best temperature for mixing is 110° to 120°. For mixing the solutions, adding the silver to the gelatine, I find the best plan on a small scale is to insert a plug of cotton wool in a funnel, and then, by pushing the wool down, one can very well regulate the speed at which the solution should flow. In the boiling itself, a very small proportion of gelatine is employed, the bulk being added afterwards. We add the 2 minims of hydrochloric acid in order to prevent fog in the after processes on account of the gelatine becoming somewhat alkaline, and also to correct a very slight alkalinity in the bromide of potassium. I need hardly say that all these operations from now (mixing) must be conducted in the dark room. The nitrate solution should be quite clear, and would be so if made with distilled water. The time actually occupied in pouring the nitrate of silver solution into the gelatine solution has a great influence upon the subsequent sensitiveness of the emulsion. In my own practice, where I mix several gallons at a time, I have mechanical means for stirring during mixing, and also during the time of boiling, of which apparatus I have brought a model. The plug of cotton wool in the funnel serves a twofold purpose ; it filters out any dirt or other undesirable matter, and it also regulates the speed of the flow. The emulsion when first mixed ought to appear of a reddish colour by transmitted light. As the boiling proceeds we shall see that the colour will alter, passing from red to violet, bright blue, then green, and finally grey, which latter stage we must avoid if we wish to keep the plates free from fog. It will now be advisable to go into the changes which have taken place in the mixture. The silver of the nitrate has combined with the bromine in the potassium bromide, forming bromide of silver and nitrate of potassium. The nitrate of potassium we shall have to consider presently. There is also an excess of bromide of potassium—that is, more than will combine with the nitrate of silver. The excess of bromide in the emulsion plays a most important part, as, without it, it would be impossible to obtain any sensitiveness and there would always be danger from fog. I am led to believe, from my own observations, that the changes which go on during boiling are as follows : bromide of silver being soluble to a slight extent in bromide of potassium, there is a constant dissolving and re-precipitation, and with each precipitation the particles are deposited in a coarser and coarser state ; the relative coarseness can be easily examined by means of a powerful magnifying glass. This coarseness will also be seen in coating the more rapid emulsion, as it has not the same covering power as the slower. While this emulsion is boiling I will show you how to make a more rapid emulsion by the ammonia process. The chief feature is that the nitrate of silver is converted into ammonio-nitrate of silver, and the free ammonia acting upon the bromide of silver and gelatine the rapidity of the emulsion is gained in a very short time. The following formula for ammonia emulsion was, I believe, first given by Mr. Henderson, who was a great authority upon the ammonia process :—

No. 1.

Gelatine (soft)	20 grains.
Potassium bromide	180 ,,
Potassium iodide	3 ,,
Water	4 ozs.

No. 2.

Silver nitrate	240 grains.
Water	4 ozs.

No. 3.

Gelatine	360 grains.

Convert No. 2 into ammonio-nitrate with liq. ammoniæ fort. and add to No. 1.

The solutions should be mixed at a temperature of about 105° to 110°. The amount of gelatine in this process has a great influence upon the rapidity ; with less gelatine one gets a more rapid plate, but at the same time the plates are rather inclined to be thin. In all operations connected with dry plate making one must exercise the very greatest care in avoiding things which one does not want to get into the solutions. By this time I expect we shall already find some little change in the boiling emulsion. It has become a little more dense, and is passing on to the violet stage. Returning to the ammonia process ; we have here a solution of nitrate of silver (No. 2), and we have now to convert it into ammonio-nitrate, and for that purpose it is necessary to have the strongest ammonia possible. First of all, an oxide is formed, oxide of silver, and it is then advisable to add only just sufficient ammonia to re-dissolve the oxide. The solutions should be mixed in the same manner as in the boiled emulsion process, and at a temperature not higher than 110°. That which I just mixed was at a rather higher temperature, and is consequently already in the violet stage. The exact amount of gelatine is of no very great importance, and at this stage of the ammonia process we add the gelatine dry.

Henderson recommends that the jar containing the emulsion, in the quantity he was making, should be put into a vessel holding three quarts of water—now being heated on the stove as I am showing you—and stirred occasionally, and by the time the water has cooled to the ordinary temperature, the emulsion is supposed to be sufficiently rapid. [At this point both emulsions were examined; the boiled emulsion being approaching the violet stage, and the ammonia being in the bright-blue stage.] When we have gained the requisite sensitiveness by either of the processes, and the bulk of gelatine added, the emulsion is put in a cool place to set. We have now to wash the emulsion in order to get rid of the products of decomposition, namely, the nitrate of potassium and the excess of bromide, together with a small amount of gelatine which has been decomposed during the time of emulsification. I will show perhaps the simplest way of washing the emulsion, and one which is thoroughly reliable. This is a piece of netting known as mosquito netting, and it is placed over a vessel of water so that it enters the water, forming a bag.

(*To be continued.*)

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PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

12,991. Alfred Julius Boult, 323, High Holborn, London, "Improvements in or relating to the Transfer of Photographic Pictures." (César Félix Josz, Belgium.)—*July 3rd*, 1893.

13,063. Alfred Julius Boult, 323, High Holborn, London, "Improvements in Magazine Cameras." (Ezra R. Andrews, United States.)—*July 4th*, 1893.

13,288. Anthony Philburn, Hall Courts, Ashton-under-Lyne, "An Improved Shutter for Photographic Purposes." —*July 8th*, 1893.

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The awards in the competition—which closed June 30th —for negatives on "Imperial" plates are as follows:— The first prize to F. Cherry, vice-president North Middlesex Photographic Society; the second to P. H. Lamberts, Amsterdam; the third and fourth are divided between A. H. Duncan, Glasgow, and F. G. Heseldine, Leeds. The announcement of further competitions in connection with "Imperial" plates is promised during the month, the next competitions to close at the end of October.

PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

July 25th.—Technical Meeting, at No. 50, *Great Russel Street.*

"The Use of Uncorrected Microscopic Objectives with Colour-corrected Plates."

Mr. Pringle will introduce the subject, and show specimens.

London and Provincial Photographic Association.

July 13th.—Mr. J. S. Teape in the Chair.

The Chairman showed some hand-camera pictures, taken at a recent Society excursion. It had been said that, with the hand camera, there was great uncertainty, but he had secured thirteen good negatives from fifteen exposures. In one case the exposure had been unintentionally given with a snap exposure of the tenth of a second. It was a cottage interior with figures, but, by proper development, it had come out right. The majority of the negatives had had considerable over-exposure, but had been developed accordingly. It was a mistake to suppose that, with the hand camera, the photographer could not over-expose.

Mr. T. E. Freshwater inquired what was the best way to treat a negative in which halation was visible. The reply which seemed most applicable was a suggestion to rub away part of the film with a rag moistened with turpentine.

Mr. P. Everitt narrated an experience in which he had locally reduced a fog-patch in a negative, but on intensification of the whole of the plate, the reduced part came up almost as though it had not been reduced at all.

Mr. A. Haddon suggested that the hypo solution must have been too dilute to dissolve the ferrocyanide of silver formed by the reducer.

Hackney Photographic Society.

Ordinary Meeting, held Tuesday, July 11th.—Mr. R. Beckett in the Chair.

A question was asked: What is the best way to restore old negatives stained yellow?

Mr. Hudson advised use of weak hydrochloric acid bath.

Mr. Moore thought bleaching with mercuric chloride and re-developing with ferrous-oxalate better.

The Chairman said often stains were caused by insufficient fixation.

A question was asked as to the approximate exposure for enlarging on slow bromide.

The Hon. Secretary said there were many things to consider, such as stop, rapidity of paper, &c. If for lantern enlarging with slow Eastman paper, aperture *f*/4 for a fairly developed negative, enlarging from ¼ to 10 × 8, he would give about two minutes as a standard from which to work.

Mr. Harrison had (by daylight) on rapid paper, given one minute with *f*/16, enlarging from half-plate to 15 × 12.

Mr. Grant advised testing by using one piece of paper and giving varying exposures.

Mr. Nunn then read a paper on "Reduction of Lantern Slides." He preferred always to reduce his slides as grain was lost, and to do them by daylight, as they could be done much quicker. In developing always be clean—have clean dishes, fingers, and filter the developer. Dust your plates. He then showed a long tunnel-shaped apparatus which he used for reduction. When using daylight, a white reflector was placed so as to reflect evenly on the negative. Aim at full exposure and full density; forcing was a mistake. Clearing was advisable.

Mr. Gosling asked if much advantage was gained by reduction rather than contact? and was informed that every defect was reduced correspondingly.

Mr. Perry asked whether thin negatives were better than dense ones.

Mr. Nunn said he had found them so.

The Chairman said copying always sharpened up more than when in contact.

The Hon. Secretary thought Mr. Nunn's apparatus too cumbersome, and advised a bellows, as it could be shut up and saves room.

North Middlesex Photographic Society.

At the ordinary meeting, held on 10th inst., the subject of Cresco Fylma Enlarging was dealt with by the Secretary, He fully explained which types of negatives were most suitable for treatment by this process and how to go about the actual work of enlarging, and showed numerous examples of successful work, including negatives, positives, opals, transparencies, &c.

A most interesting discussion followed, which was sustained by most of the members present.

The result of the outing to Sewardstone was that Mr. A. J. Golding was first, the President (Mr. J. W. Marchant) second.

Ashton-under-Lyne Photographic Society.

On Saturday last, July 15th, the above Society's ramble was to Chew Brook, near Greenfield, with C. E. Redfern, Esq., J.P., as leader. The party, consisting of twenty-five ladies and gentlemen, left the Society's rooms, Henry Square, a little before two o'clock. The day was not very promising, but a good number of plates were exposed. and the party enjoyed the outing very much. They had tea at the "King William" Hotel, and arrived home in good time. The number of plates exposed was sixty-five.

Birmingham Photographic Society.

Ordinary Meeting, July 4th.—Mr. J. H. Pickard in the Chair.

A number of negatives taken on the recent whole-day excursion of the Society to Dovedale were staged on racks on the table. These negatives were inspected with great interest not only by those gentlemen present who had gone on the excursion, but also by the general body of members, and the display afforded convenient means of comparison of results, and notes as to the obtaining of those results. A full and useful discussion was evoked by this means, about fifty negatives and prints being shown.

Leicester and Leicestershire Photographic Society.

On the 13th inst. a number of the members of this Society went by special train to Warwick, where special permission had been obtained, through the kind permission of the Earl of Warwick, to photograph the castle grounds; as, however, the party arrived rather late, the castle itself was left out of the programme, and the interesting bits in the immediate vicinity occupied the attention of the members, and offered quite sufficient work in the quaint buildings and streets and the river and its ancient associations. In spite of the dull weather some good work was done by time exposures, snap-work being out of the question. After the members had exposed their plates an adjournment was made to the Dale Temperance Hotel, the members being in fine trim for a substantial tea, after which they took the tram for Milverton Station, about a mile from Warwick proper, and there taking the train were soon at home again after an enjoyable outing, and a promise to re-visit the place and castle at an early date. The President, Mr. J. Porritt, was leader of the party, and the next meeting was arranged for Belvoir Castle, on Saturday, the 29th inst., and the President cordially invites any members of the sister societies who may wish to join the excursion to this historic mansion.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

J. P.—We have answered your letter by post.

E. H.—Positive portraiture on glass is quite an obsolete method, but you can obtain particulars by referring to one of the old text-books—such as Hardwick's. The process has been altogether superseded by the ferrotype method, and you probably mean this when you say "the same as they take them in the streets." We shall be pleased to give you more information, but you will do well to read up the matter, and, better still, if you obtain a few lessons from a practical man.

Motes.—The varnish will settle down, and you can decant the clear portion if you give it time. If in a hurry to use it, filter by means of a paper funnel through a plug of cotton wool, first moistened with benzole—for the varnish specified—or with alcohol, if a spirit varnish be in question.

Sumner.—The yellowness is due to imperfect fixation of an unusually thick film. Remedy:—A second bath of fresh hypo, after fixation is apparently complete.

J. J.—The matter is quite outside our province, and we cannot enter into it.

P. M.—1. We prefer the silver cyanide intensifier, but, as a precaution, should varnish the plate after drying. 2. A rose-tap certainly.

Mallock.—You will be able to get the salt of Hopkins & Williams.

J. O.—Try a water varnish made of borax and shellac.

Sum.—The markings are due to abrasions of the varnished film. They will not appear in the print if you prevent access of direct light, by interposing a sheet of ground glass or opal. The exposure must, of course, be increased.

K.—The process by which the slide has been produced is collodio-albumen. Except in expert hands it will not give such good results as collodio-bromide, but the film will stand any amount of ill-treatment, and it is undoubtedly permanent.

Sixty.—Hydrochloric acid and alum will remove the lime stains, but at the risk of frilling the film. A 10 per cent. solution of sodic citrate will accomplish the same end without such risk, hence it is to be preferred.

S. S.—The information which you seek can be obtained from the recently published "Blue Book of Amateur Photographers," price 5s. Shall we send you a copy?

C.—Beer is a good preservative, with pyro, of collodion dry plates and was recommended by Canon Beechy many years ago. It was also at one time advocated as an addition to the developer for gelatine plates.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1821. JULY 28, 1893.

NOTES.

THE Photographic Society has just issued a Catalogue of Books and Pamphlets to be found in its Library, as well as a list of articles and pictures to be seen in its Museum. With regard to the former, a very valuable photographic library is here represented, but judging by the paucity of exhibits the Museum is but in embryo. As stated in the preface to this publication there must be many articles in the hands of members of the Society that are of interest photographically, and these the Society would be glad to take charge of and to display.

WE hope that this appeal of the parent Society will not go unheeded. Futile attempts have before been made to give in one collection a chronological history of photographic processes. The enterprise is one that all photographers are interested in aiding, and we trust that our readers, whether members of the Society or not, will lend or give anything of historical interest which they may have in their possession.

A PAPER to prevent the forging of documents has recently been produced in the United States, and is thus described :—" Ink is applied to a lithographic stone, and another similar stone is placed on its face and rubbed together until the ink is so distributed that a variegated design is produced. When the ink is dry, the design is transferred to paper after the usual manner in lithographic printing. Of course any colour may be selected for the ink. It is manifest, also, that the design thus cheaply produced can be varied indefinitely until a pleasing or effective one is obtained. A counterfeit is detected at once when compared with a sample of the genuine paper." We do not quite see how paper so prepared would be protected from imitation by photographic means.

THE sweet simplicity of the kodak, with its flexible roll of sensitised celluloid, has for a long time been recognised by tourists, and those whose tours are long enough to be raised to the dignity of expeditions are now taking advantage of its convenience. There are not many spots on this much-trodden earth that remain to be discovered by the explorer, but, such as they are, the kodak is an indispensable part of the equipment of the discoverer.

IN the valuable articles which have been published in the *Dundee Advertiser* anent the recent whaling expedition to the Antarctic Seas, there are many allusions to the useful part which photography has played in the enterprise. Thus it is stated that Dr. Donald, who acted as surgeon on board the *Active*, " was busily engaged with his 'kodak,' and will, no doubt, be able to produce many unique and interesting views of Antarctic scenery." We also learn from the same source that "the nights were often very beautiful, and that on Christmas at midnight the light was so perfect that Mr. Bruce was able to take photographs of his surroundings."

LIEUT. PEARY has taken with him to Greenland five kodaks and 2,500 extra film exposures, after having assured himself of the efficiency of the system by bringing back with him from his last trip about 2,000 good film negatives. Dr. Nansen is another "kodaker," and we trust that we shall at some future time be able to report that he, too, has returned with a goodly assortment of exposed films.

AT the recent exhibition at Chester a silver medal was awarded to Messrs. Newton, of Fleet Street, for the excellent set of lantern slides shown by them, illustrating Bees and Bee-keeping. These pictures, it will be remembered, are from negatives taken by Mr. Freshwater, and we learn that several important additions have been made to the series since it was first noticed in our columns. The educational value of such pictures is extremely great.

A GLANCE through the scientific papers is apt to give one the impression that a large number of foreign professors are very busy in the pursuit of bacteria. Hardly a week passes but we learn that these terrible organisms have been discovered in some fresh place. Coins had their turn, now bank-notes have to be carefully guarded against (there is little fear of some of us running much risk from this source); but the latest haunt of the wily bacterium has been found in the post-card. One ingenious gentleman infected a post-card purposely, and found after twenty-four hours that it was swarming with living organisms. The only paper which is really proof against the scourge is the sensitised material used by photographers. The smell sometimes of this article is quite enough to repel even a bacterium, who, as a rule, is not particular about foul odours.

CASSELL'S *New Technical Educator*, which is now being issued in monthly parts, contains a series of articles on Photography by the Editor of the PHOTOGRAPHIC NEWS.

IT does seem strange that London, the richest storehouse in the world for memorials of the past, should be so neglected, photographically speaking. One cannot be too grateful for the 120 pictures taken by the now extinct Society for Photographing Relics of Old London; but in comparison with the wealth of material untouched, these pictures are absolutely insignificant. And even these 120 pictures might never have been taken but for what might almost be called an accident. As Mr. Marks says in the printed description which will be found with the photographs in the Guildhall Library, the Society originated in the fact that in 1875 the Oxford Inn, Warwick Lane, one of the picturesque hostelries of Old London, was about to be demolished, and as there was no print in existence to preserve its memory, it was suggested that it should be photographed. One photograph led to another, and eventually, in the course of some twelve years, the 120 pictures were created. Every credit is due to Mr. Alfred Marks for his perseverance; but how much more could have been done had the work been systematically divided, after the fashion adopted in Warwickshire!

THE task of organising such an undertaking properly belongs either to the Archaeological Society or to the Society of Antiquaries, perhaps to both. The amateur photographic societies would be only too glad, we are sure, to co-operate; but their work would be the mechanical portion, the selection of subjects must be left to experts. The thing is much easier now than it was when Mr. Marks began, especially as regards interiors, and interiors should furnish the most interesting examples. One feels this in looking at the interiors of the Charterhouse and Ashburnhan House, which form a portion of the 120 pictures just mentioned. A good many of the exterior views are absolutely spoilt as pictures by the intrusion of hideous street loafers, who, by some strange fatality, are always on the track of the out-door photographer for no other object, it would seem, than to plague him and disfigure his work.

WE hear on good authority that the Salon Exhibition promises well. Many photographers in England are preparing pictures specially for it, as they are in Vienna, Paris, Berlin, Brussels, Italy, and India, and very important contributions are expected from America. All this tends to show that it really is *not* medals that the *best* photographers now strive for.

A SOCIETY paragraphist has discovered that the Prince of Wales has a marked aversion to being photographed with the Princess, because the latter is taller. Therefore, says this authority, whenever the two are photographed together the Prince is always seated and the Princess standing, or *vice versâ*. When they have taken both standing, the Prince is "mounted on some steps in the background." The writer does not say what steps. Let us hope he means steps leading up to a door, otherwise the effect would be rather peculiar. The Prince of Wales, unfortunately, owing to the exigencies of male attire, cannot adopt the plan of Her Majesty who, when photographed in a standing position, always mounts a stool, which is concealed by the ample skirt of a court dress.

Apropos of court trains, it is remarkable how few ladies are photographed in the elaborate dress prescribed for drawing-room presentations. The fact is, the camera, with its uncompromising accuracy, always makes a woman who has a prodigious train behind her look terribly dumpy. What she likes is to appear about ten feet high, with a skirt resembling a sea-serpent in its convolutions below her. How the photographer is to rival the fashion-plate artist we do not quite know, unless he plants the lady on a ladder, or elongates her body by Mr. Van der Weyde's photo corrector!

PHOTOGRAPHY is not appreciated by evil-doers. A circular is before us to the following effect:—"Dear Sirs,—Mr. ——, whose portrait we enclose, is no longer in our employ, nor is he authorised to collect accounts."

ON THE POWER OF COMPENSATING IN DEVELOPMENT FOR VARIATION IN EXPOSURE.

BY W. K. BURTON.

(*Concluded from page* 454.)

NEXT was tried using one-fourth again more pyro and bromide for each doubling of the exposure—that is to say, multiplying $\frac{5}{4}$. It was found that this multiplier was somewhat too small. That is to say, the negatives that had had the longest exposures were thinner than those that had had the shorter. The falling off in density was not, however, perceptible through the first five negatives.

It is evident that the proper multipliers, if a constant multiplier is what is correct, and it is evident that such is very nearly being the case, must lie somewhere between $\frac{4}{3}$ and $\frac{6}{4}$, or $1\frac{1}{4}$ and $1\frac{1}{5}$; between, that is, 1·2 and 1·25. Let us say it is 1·3, the thing might be put in the form of an equation as follows :—

Let C = quantity of pyro (or of bromide) used for right exposure.

$$\begin{array}{llllll}
\text{Then, if exposure} & & = 1 & \ldots & \text{Pyro} & = C \\
\text{,,} & \text{,,} & = 2 & \ldots & \text{,,} & = C \times 1{\cdot}23 \\
\text{,,} & \text{,,} & = 4 & \ldots & \text{,,} & = C \times (1{\cdot}23)^2 \\
\text{,,} & \text{,,} & = 8 & \ldots & \text{,,} & = C \times (1{\cdot}23)^3 \\
\text{,,} & \text{,,} & = 16 & \ldots & \text{,,} & = C \times (1{\cdot}23)^4 \\
\text{,,} & \text{,,} & = 32 & \ldots & \text{,,} & = C \times (1{\cdot}23)^5 \\
\therefore \left\{ \begin{array}{l} \text{,,} \\ \text{When } 2^n \end{array} \right. & \begin{array}{l} \text{,,} \\ \\ \end{array} & \begin{array}{l} = E \\ = E \end{array} & \ldots & \text{,,} & = C \times (1{\cdot}23)^n
\end{array}$$

$$\text{Therefore } n = \frac{\log. E}{\log. 2}$$

$$\therefore \text{Pyro} = C\,(1{\cdot}23)^{\frac{\log. E}{\log. 2}}$$

$$\text{Then since } (1{\cdot}23)^{\frac{1}{\log 2.}} = 2$$

$$\text{Finally, pyro} = C \times (2)^{\log. E.}$$

From which equation a curve or a table might be made for practical use.

This law is at least approximately true for several brands of plates, for sundry initial variations of developers, at least within limits of the normal exposure, and this, multiplied by 100 or so.

Your attention is now asked for a set of prints from negatives that have had exposures varying as 1, 2, 4, 8, 16, 32, 64, and 128, the same brand of plate being used, and the exposures being made about mid-day—as a matter of fact from a little before till a little after, as quickly one after another as was possible, the weather brilliantly clear.

I should like to know if anyone seeing these prints will undertake to place them in the order of their exposures? I cannot myself. I cannot, in their present form, even tell which is the first and which the last. They are, however, cut from 12 × 10 prints, and it was pointed out to me by a very "'cute" friend—he is from the United States of America—that it was possible, in the original condition of the prints, to tell the two that had had the longest exposures, on account of the effect of the motion of the overhanging branches of a tree, that gave a little beauty to the otherwise very uninteresting little bit of landscape—uninteresting unless it may interest some old friend to know that the vehicle in the foreground (put there to get a bit of really dark shadow, to help the judgment in development) is that in which his humble servant is ignominiously trundled about the streets of Tokyo by a blue-coated, bare-legged coolie!

I cannot tell the first six negatives one from the other by inspection, but the last two I can tell from the others, and from each other, on account not only of the yellowness of the image, but on account also of a yellow deposit (I do not know what else to call it) in the shadows, or, rather, all over the plate, including those parts of the plate protected by the rebate of the printing-frames. This discoloration is one of the only two reasons that I know of why compensation for variation in exposure should not be indefinite. It makes the time taken for printing very long. I have, in experiments with quarter-plates, got results without this stain and objectionable colour of image, with exposures varying more than those mentioned, and thought at one time that I had got to the bottom of the matter. I find, however, that I have not. Its appearance is uncertain. Perhaps it is due to impurity in some one or more of my chemicals acting for a long time. I somewhat suspect the sulphite I am using.

Another reason why compensation must be limited in practice is the outrageous length of time that development takes when the exposure is much above normal, and is compensated for by variation in the developer. The plate of the eight, from which the prints that are shown were made, that took the longest exposure, took two hours to develop.

It may be urged that the prints are not identical; it is quite true that they are not. I only point out that there is no uniform variation, and remind you how very difficult it is to make even two really identical negatives (assuming that the conditions are such that it is possible), if only one factor varies, say the rapidity of the plate. I should like to see anyone make eight identical negatives on eight plates, varying in sensitiveness as 1 to 128 at the first attempt, and it must be borne in mind that this was the first experiment made after I had concluded that the formula given above represented approximately the variation in developer necessary, that the brand of plate used was somewhat different from any we had been using before, and that the only instructions Mr. Arito had were, "Use these developers for the different plates, and make eight negatives as like each other as you can." I am sure it would have been possible, by several trials, to get negatives practically identical.*

---

* The print marked "9" on the back was from a negative that had an exposure the same as the longest of those mentioned, and that was developed with the first of the developers given. It was removed from the developing dish as soon as marked fog set in. Another plate was exposed for the same length of time, and was developed in the same developer, but was given the same time in the solution that had been necessary for the plate that had an exposure of $1\frac{1}{2}$ seconds—namely, five minutes. The result is almost complete blackness, but with some reversal. If there were a week to spare, and certainty of sunshine all day long on every day, I should make a print from this negative too.

As to the actual developers used, I must confess that to avoid the trouble of multiplying the quantity of pyro and of bromide by a much awkward fraction, 1·23, which I had not then arrived at, for each increment in exposure, or of integrating from the initial quantities, by the use of a table of logarithms, I multiplied in the first three cases by $\frac{4}{3}$, in the last four by $\frac{5}{4}$, the result being not much different from what would be got working by the actual formula.

The nearest ¼ grain and, towards the end, the nearest ½ grain, was taken in every case.

The following were the actual developers used:—

Per ounce of developer.

1	Pyro, 3 grains. Bromide of ammonium, ¾ grain.
2	Pyro, 4 grains. Bromide ammonium, 1 grain.
4	Pyro, 5 grains. Bromide ammonium, 1¼ grain.
8	Pyro, 6 grains. Bromide ammonium, 1½ grain.
16	Pyro, 8 grains. Bromide ammonium, 2 grains.
32	Pyro, 11 grains. Bromide ammonium, 2½ grains.
64	Pyro, 14 grains. Bromide ammonium, 3½ grains.
128	Pyro, 19 grains. Bromide ammonium, 5 grains.

Ammonia, 2 minims.

The sulphite used was only five grains per ounce in the first six cases, ten in the last two. The reason the quantity was kept so low was that, with the long times of development necessary in the case of the longest exposures, the plates were found to partly fix out before development was over if the sulphite were kept at four or five times the quantity of the pyro. I do not yet know whether this was due to impurity of the sulphite or not.

The exposures actually given were as follows :—

Mins.	Secs.
	1½
	3
	6
	12
	24
	48
1	36
3	12

They were made by myself, by the aid of a stop watch, with such care as I am capable of. There may be an error of a fifth, or even, perhaps, a quarter of a second, in any one of them, but I think not of more. It is true that this amounts to a considerable percentage in the case of the shorter exposures, but the error is as likely to be in one direction as in the other, and, in any case, it leaves the range of exposures as one to fully a hundred.

In a sealed envelope, which I hope will not be opened till any who have had patience enough to listen to this paper as far as this point have tried to put the prints in their proper order, are given numbers corresponding to letters on the backs of the prints. It is to be understood that No. 1 corresponds with the shortest exposure and so on.

Conclusion.

I hope I have proved by these experiments that we have power both to vary in development the results of uniform exposures, and to compensate for differences of exposure. I should not have thought it right to trouble you with so long a paper on the matter, but that the possible variations and the possible compensations have proved so much greater than I imagined them to be, and so much greater than they are, I think, commonly supposed to be.

It will be seen that throughout these results, in so far as they constitute change in ratio of gradation, are brought about only by stopping development at certain stages before it has gone as far as it would go. I doubt if it is possible to change gradation of density, or of opacity at all, if development be carried as far as it will go. At any rate, the change that can be effected is but slight. This is leaving out of the question the reaching of, or approaching to, a maximum possible density.

When, some twelve or thirteen years ago, I stated that "bromides restrain both the increase of density and the increase of detail, but the former to a less drgree than the latter," I believe I stated, in somewhat crude language, the reason why it is that bromides in the developer give us the power both of varying our results with constant exposures, or of compensating for varying exposures.

Before that time, if I remember rightly, I had found, to my own surprise, that it was possible, if only time were given, to bring out the same figure on plates exposed under the Warnerke sensitometer, however great the quantity of the bromide added to the developer, within pretty wide limits. The results of these experiments were communicated to the *British Journal of Photography* in one, or I think more than one, article that I have not access to here, and were, I remember, discussed at the rooms of the Society of Arts, probably before the South London Photographic Society.

After that a more elaborate set of experiments was made, investigating the results of varying each of the three ingredients of the alkaline developer, the results being communicated again to the *British Journal of Photography*, and the actual plates being handed to the Camera Club, after that institution had been founded.

The results of these experiments are referred to by Mr. H. J. Channon in a very interesting paper in the *International Annual* for 1891, page 255. I also received much information from this gentleman, and various papers, all of which courtesy has, I fear, passed unacknowledged, for which omission I crave forgiveness.

I have given the results of only a fraction of the experiments that I intended to describe. These include the comparisons of the effects of hydroquinone, eikonogen, rodinal, amidol, and "cristalos," using various alkalies, or, in some cases, none, with what I have called the "standard pyro and soda developer" : but this paper has grown to such an unconscionable length that I must leave the results of these experiments to some other communication, or to limbo.

I wished to say something about Messrs. Hurter and

Driffield's method of determining the sensitiveness of plates, but shall merely now say that it seems to me by far the nearest approach that has yet been made to a perfect means of determining the sensitiveness of plates, taking into account, as it does, the useful densities, instead of the faintest detail, as heretofore—yet not perfect. The reason why I consider it not perfect will be understood from the objection that I have to any definition of a perfect negative that has yet been given, other than that negative that appears perfect to the man who makes it, the assumption being that he is a man of skill, and of something more, and knows what he wants eventually to produce—to wit, a picture.

I wish, finally, to express my gratitude to my colleague, Mr. C. D. West, M.A., Mr. K. Arito, and Mr. O. Kondo, for their invaluable assistance in all the experiments described.

P.S.—Just a word about the re-reversal that we read of as arising from very prolonged exposures. I have tried to get this often enough without success, and determined to make a supreme effort this time. The long sensitometer was used, and plates were exposed to the full blaze of sunshine for times from $\frac{1}{4}$ sec. to 34 min. 8 sec. There was not a trace of re-reversal, developing either with pyro or with ferrous oxalate. This corresponds to an exposure in the camera, to a brilliantly-lighted landscape for many days, with the conditions as they commonly are! I think that, if it is possible to prove a negative, these experiments prove the non-existence of re-reversal in the case of gelatine dry plates. I should like to know of any one who has had actual experience of re-reversal in the case of gelatine dry plates, or of any other plates for the matter of that.

REMARKS UPON PROFESSOR BURTON'S PAPER BY MR. H. M. ELDER.

A great many of Professor Burton's earlier remarks seem to be due to the unfortunate confusion caused by the special meaning given to the word "density" by Messrs. Hurter and Driffield. His opinion as to the range of gradation commonly met with in camera work differs very largely from that of Capt. Abney, who, at a meeting lately held at the Camera Club, said that as a rule this range did not much exceed intensities of light in the ratio of about 33 to 1. In the example quoted at the time, it was asked what was the ratio of the light reflected by the white and black in the case of a figure draped in black velvet with a white shawl.

Passing on, however, to the main object of his paper, Professor Burton has abundantly proved in a qualitative manner that the ratio of gradation in a negative is dependent on the time and method of development, and his numerical formulæ for the strength of pyro developer to compensate for increased exposure is a very interesting one. It seems, however, that a mere qualitative proof of this fact is not of very great importance, except in so far that it will tend to reassure those photographic weaklings who have been frightened by Messrs. H. and D.'s much misunderstood paper into disbelieving the evidence of their own experience. What would seem now to be wanted is a complete quantitative investigation of the whole problem. It is, of course, a long and laborious task, but it may be lightened by working systematically at it. I would point out that from Professor Burton's paper it is almost impossible to really repeat his experiments, since certain important factors are left almost unnoticed. The prints themselves, as the author has pointed out, show many irregularities, and this was inevitable from the method of work. It is easy to see that in the feeble light of the developing room it is a sheer impossibility to carry out such instructions as were given to Professor Burton's assistant with any certainty, and I think that it speaks very highly for Mr. Arito's care and ability that the irregularities are not more marked than they are. Then, again, it is impossible to draw any very definite conclusions from mere inspections of negatives and prints. It is an absolute necessity, in carrying out such work as this, to make actual measurements of the transparencies of the resulting negatives. No doubt, if Professor Burton had done this the irregularities would have been more marked than they are, for it has been pointed out again and again by Capt. Abney and others that the eye is utterly untrustworthy as a measuring instrument by which to judge the density of a deposit on a photographic plate. If there is any truth in a formula which I put forward at the Camera Club Conference of the present year, to represent the action of light and development on a photographic plate, it ought to be capable of accounting for such results as those of Professor Burton's. And if anyone will take the trouble to examine the effect of varying the two constants that depend on development in this formula, I think it will be easily seen that it will account in a large measure, and I believe, myself, entirely, for these results, and that even the complete formula of Messrs. H. and D. fails to do so. Professor Burton's paper is an interesting and very valuable one, and would have been far more so if he had not trusted so much to human judgment, both in making his experiments, and in interpreting the results. By this, I mean that what is wanted is a series, and a long one, of definite experiments on plates definitely exposed, developed in developers of known constitution for known times (not until a certain appearance most difficult to seize is shown) and then measured carefully, so that the results can all be numerically expressed.

* * *

PHOTOGRAPHERS will be interested in knowing that the human body is nothing but a sensitive plate, quite capable of distinguishing between actinic rays and heat rays. The discovery is the outcome of the experience of a writer in the *Indian Gazette*, who asserts that sun-stroke or sun-fever is the result not of the heat or dark rays, but of the violet end of the spectrum. He now lines his hats and coats with material of a yellow colour, and, since adopting this plan, has never suffered either from sun-stroke or from sun-fever, although previously he was often a victim.

MULTIPLE FILMS.

BY H. S. FRY.

THE subject of compound or multiple-coated films is so new, and supplies so many fresh ideas for practical work, that I cannot pretend in this paper to do more than deal in a touch-and-go fashion with it. My remarks will only be valuable, if at all, for some practical suggestions as to the best methods of utilising the advantages which the principle of combining emulsions of differing characteristics and speeds into one film offers.

NOVELTY.

Although it would, perhaps, be safer to say that, for the prevention of halation, multiple films in gelatine emulsions are rather the result of a happy thought than an entirely new idea, yet, as far as a practical manufacture is concerned, there is, I think, little doubt of their absolute novelty. Experimentalists may have dreamed of some such thing ; as, indeed, of what have they not ? but it has not hitherto become a realisation.

Still, we have in the old collodio-albumen dry plate a compound film consisting of a collodion bath plate with an albumen sensitised film placed on top of it, and one of our veteran workers, Mr. Forrest, of Liverpool, only a few days since, spoke to me most eulogistically of that old method, and hopefully of the multiple gelatine film for sympathetic reasons.

That process is not only beyond my recollection, but probably there are few in this room who had any practical acquaintance with it.

MANUFACTURE.

In making a multiple film dry plate, a coating machine may be said to be necessary to secure a regular flow of emulsion for the second and third coatings. With this exception there are no technical difficulties but such as are common to the manufacture of dry plates generally. Each coating is dried before the next one is laid upon it, and the most important consideration for the emulsion-maker is to provide an emulsion with as small a proportion of gelatine to silver salt as possible.

THEORY OF THE FILM.

In determining the relative speeds and characteristics of the different films a large field for experience and experiment is open, and time alone can determine whether the present arrangement is that best suited to attain the end in view. This may roughly be stated to be the nearest approximation to a single film in which the top surface shall be of the highest possible speed, and the bottom of the film of a density-giving silver salt, an emulsion slow and dense in the highest degree. The film should gradually change from one characteristic to the other. In theory the lowest portion of the film should perfectly resist the passage of actinic light.

Such a film, with our present knowledge, is not possible. We must be satisfied with the best substitute for it. I refer to this especially because it has been asserted that there are steps or jumps in the sensitiveness of a multiple-coated film which are ascribed to the difference in speed of the various separate coatings. I do not propose to do more than allude to this for a simple reason. An examination of the pictures produced by the films does not, I think, reveal any obvious fault answering to this criticism. I can conceive that, were a multiple film wrongly used, as, for instance, were the top film stripped off with the idea of securing a negative upon the lower film only, then, in such a case, there might be a lack of detail due to the removal of the top layer, and this might appear to be a jump in the sensitiveness between the two films. Such a method of working is not to be recommended, and I do not purpose to seriously consider improper uses of the film. It not infrequently happens that dangers or difficulties anticipated in theory do not occur in practice. This is such a case.

As to the part played by the underlying films, I regard them as prepared to take up and usefully employ such actinic rays as fall beyond the scale of correct representation in the overlying films.

DISTRIBUTION OF THE IMAGE.

Let us assume a case in which the range of contrast is great, such as a dark interior with a light and bright window. Let us also assume that which, I think, is generally the case, that for such a subject an exposure upon a dry plate is more or less of a compromise between the time necessary to properly photograph the deep shadows, and that necessary for the bright lights. Indeed, if it be not so, where is the difficulty in making such pictures ?

In the multiple film the image of the window will be formed upon the lowest film, and the middle tones upon the second film, whilst the details in the deep shadows will be upon the top film. In other words, the image will be distributed in a selective manner, and this can be easily demonstrated by stripping off portions of the film of such a negative, and ascertaining the action of light upon the lower films.

In the example given I have supposed that the exposure has been abnormal—that is to say, that the exposure has been made to act upon the sensitive material so as to sufficiently impress the details in the deepest shadow upon the top film, leaving the brighter portions to act selectively upon the lower and less sensitive emulsions.

It is with such an exposure that the best value can be obtained from the multiple film. It is possible that, because better effects of light and shade are produced upon a multiple film by abnormal exposures, some have considered it a matter of necessity that such films should be, in a photographic sense, slow. This is an inference not warranted by the premise, as there is no reason to believe that the top film in any way loses speed by being imposed upon a film of emulsion instead of a glass plate. Without hazarding any conjecture as to the why and the wherefore, I think that, in a pictorial sense, there will be found a greater range of gradation and more roundness, and, if I may coin a word, more stereoscopicity of effect, with an increased (or abnormal) exposure than obtains in a homogeneous film with any exposure.

It must also be borne in mind that, with the ordinary dry plate, the effect of more exposure than will influence the region of correct representation makes for flatness of image and loss of true gradation. With the multiple film, however, it tends towards increased roundness of image. With an exposure calculated to reproduce the shadow details to their fullest extent, and which I describe as abnormal because it is more than can be usefully given to a homogeneous film, are the best results obtained with the new tool. I am disposed to suggest that this is only a natural result of the ability of the multiple film to successfully render a longer range of contrast. In other words, the sensitive film which will reproduce in natural ratio the widest range of light and shade may be expected to produce at the same time the best pictorial effect.

It is for this reason that I am entirely opposed to the idea of over-exposure and stripping the top film, a method which I regard as an indication of failure to properly understand the principle of the compound film. We are, by this method, only able to make a picture upon one of the lower films. Now, for this purpose, it is best to use such a one in its simple form, and not to risk failure by exposing through some other film, which has to be wasted. Wilful waste makes woeful want, as the old alliteration has it.

In point of fact, the useful detail of the negative will be found upon the top film, and this detail we cannot afford to lose in our negatives.

Halation.

The question of the freedom of the compound film from halation, or light reflected from the posterior surface of the supporting glass plate, depends upon two points—first, that the difference in sensitiveness between the top and bottom films shall be at least as great as the difference in the value of the light reflected from the brightest and the least bright portions of the object to be photographed; and, secondly, upon the method of development employed. There can be little doubt as to the efficiency of the principle employed—viz., that the light shall be intercepted and usefully (in the photographic sense) employed by the lower film. When "backing" is resorted to to prevent reflections, it is but a makeshift method of obviating the disagreeable effects of light in the wrong place. The principle of the multiple film is to prevent the light passing into the glass or support. In actual work a triple film gives practical freedom from this defect in most trying circumstances, and that without backing.

This is not the place to discuss whether a commercial article is effective or not; but I am compelled to add, that if the difference in sensitiveness between the top and bottom films in the commercial article be not now sufficiently wide to secure without halation the most violent contrasts which may present themselves for representation, the principle still applies, and it is but necessary to lower the photographic sensitiveness of the bottom layer to perfectly effect the object. Or, as an alternative for extreme ranges of contrast, a fourth film might be added. So much depends, however, upon the method of development, that I believe three films to be ample for all practical purposes.

Exposure.

I now pass to the question of development and practical treatment of the films. There are two exposures for multiple films.

First, *the normal*, is the correct exposure for the top film, supposing it to be coated upon a glass plate by itself in the ordinary way. For such an exposure development will be normal, and precisely the same as it would be supposing the sensitive film to be of a homogeneous rapid character. That I need not discuss further.

The second exposure is one which I prefer to call *abnormal* rather than over-exposure. It will be apparent that, with underlying films of less rapidity, and each underlying film protected by a light-absorbing filter of emulsion above it, without recourse to any device in development for restraining or retarding the effects of the light action, the lowest films are capable of absorbing and using a largely extended exposure. I am informed that the relative rapidities of the three emulsions in the triple films are as 1, 4, and 30, and, when to this margin of speed which exists between the top and bottom film is added the resistance to light passage of the first and second films themselves, it will be obvious that there is a considerable available margin of latitude in exposure. The point, therefore, when over-exposure in the usual sense of the word begins, is so far away from the normal as to render it unnecessary to take it into immediate consideration.

Development.

With an abnormal exposure, development must be "tentative." There are two methods:—

First, by working with solutions of suitable energy to develop the image until sufficient detail be obtained, and then, by the liberal use of a soluble citrate, to develop up density and contrast from the lower films, in which there is a store of density-giving emulsion to which the ordinary worker is quite unaccustomed; or, secondly, to begin with a very dilute and restrained (with bromide) solution, so as to secure in the lower film sufficient density first; afterwards, if necessary, acting upon the top film with a more energetic developer, to bring out such detail as may be desired.

I am not quite certain as to which of these methods I prefer, but I am largely influenced by the fact that it is the second method which the inventor of the plates relies upon to make his pictures. I have had the pleasure, on more than one occasion, of seeing him develop 15 × 12 interiors by this method with such ease, and so much regular success, as to make me doubtful of the propriety even of mentioning the first method.

I cannot do better, therefore, than give his method, premising that the same principle applies whatever developing agent be employed. The developer Mr. Sandell prefers is a mixture of hydroquinone, eikonogen, and rodinal, as follows:—

Concentrated Solution.

Hydroquinone	30	grains.
Eikonogen	100	,,
Rodinal	9	drachms.
Sulphite of soda	2½	ounces.
Carbonate of potassium	2½	,,
Water to make	20	,,

(*To be continued.*)

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, JULY 28, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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ANTIPODEAN DIFFICULTIES.

NEW ZEALAND, the land of gorgeous scenery and natural wonders, might surely be regarded as a photographer's paradise. The photographs which have reached this country in such abundance, besides telling us of its beauties, have assured us that there are workers there who well understand their business, and can turn out pictures which are most creditable. Only a few years ago one of these visited this country, and brought with him photographs illustrating the volcanic regions of the north island which have never been excelled, and other circumstances have led us to believe that, although workers here at home had many reasons to complain of hard times, their *confrères* of Maoriland were in far happier mood.

We now learn that New Zealand photographers have their troubles to contend with like their brother professionals in the old country, and that they are seeking relief by petitioning their Parliament for redress by legislative enactment.

In the first place, they are suffering from that species of vulgar fraud which seems, by some wonderful means, to have spread itself over the face of the habitable globe with remarkable speed. "Ill weeds," it is said, "grow apace," and that very noxious form of weed, the free portrait dodger, is no exception to the rule. Hounded from the States of America; almost, but not quite, scotched in more tolerant Britain, the free portrait dodger has been busily operating at the Antipodes, and, no doubt, has made the business pay.

It is astonishing to the ordinary man who can read and write, and who keeps himself pretty well posted with regard to current events by means of his newspaper, that a vulgar swindle, like the confidence trick, or the free portrait dodge, should continue to flourish after the exposure it has received, and the punishment that has been awarded to a few of its professors. We can only assume that there is a large proportion of the population of every country which is so regardless of what is going on in the world, that newspapers are regarded more as useful wrappers for butter and soap than for any intellectual purpose. For this reason it is of little use to print cautions against such frauds, for the persons who take the trouble to read them are the very ones who need them not. It is like a parson abusing his congregation for not coming to church. The good folk of New Zealand seemed to have been as gullible as the victims here in England, and they have been mulcted in exactly the same impudent fashion. Here is a case quoted from a paper which will show that there is nothing new or even clever in the *modus operandi* :—

> "THE FREE PORTRAIT BUSINESS.—In the Small Debts Division of the Central Police Court, on the 10th inst., before Mr. G. W. F. Addison, S. M., A. F., and C. S. Doney, trading in Oxford Street as the Globe Portrait Company, sued F. Haddon, of No. 4, York Terrace, Pyrmont, for the sum of £6 10s., alleged to have been due for a framed enlargement of a portrait. The evidence was to the effect that some time since the canvasser in the employ of the plaintiffs' company waited upon the wife of the defendant and represented that his firm was willing to enlarge a portrait free of charge, providing that the cost of the framing was paid. The defendant's wife consented to the enlargement being made, and upon the delivery of the picture £6 10s. was demanded in payment, and defendant refused to pay. Mr. Addison, in dismissing the case, made some severe comments on the 'free portrait' business, and said the press deserved the thanks of the community for exposing the matter."

But the free portrait business is not the only thing of which our New Zealand friends have to complain. A more vulgar swindle is illustrated by two scoundrels who are travelling about the Colony pretending to be photographers. These men get payment in advance from their customers, promising to send on the pictures from the next town. The pictures never arrive, and it is only reasonable to suppose that in reality no plate was exposed.

This last form of swindle reminds us of an impudent fraud which was exposed in one of our own police courts a few years ago. Two men were charged with obtaining money by false pretences. They were itinerant photographers who carried with them the necessary equipment for working the wet collodion process. But they, at any rate, knew their work; for it was their custom to show their clients the negative taken, and to promise prints on a subsequent date, payment in advance always being secured. When detected, it was discovered that they only had in their possession one solitary plate of glass, and it was upon this that the negatives were taken, each one being wiped off as soon as it had been shown to the victim.

The New Zealanders also complain that their country is invaded by European firms who send agents to the Colony to photograph the scenery and afterwards flood the country with prints at a price which cannot be competed with. We do not quite see how this can be the case unless the native photographers demand a very outside price for their work. The expense to any European firm of sending a competent man to New Zealand must be considerable, and unless a fair price were charged for prints the enterprise would not pay. The native workers ought surely to be able to undersell their foreign competitors. But in one respect they certainly have the right on their side. It seems that imported photographs, printed on either bromide or chloride paper, are subject to a duty of only 15 per cent., but if the sensitised paper is imported for the use of the native photographers, it is subject to an impost of 25 per cent. But here, again, one is inclined to ask whether there is no one enterprising enough to start a factory for the supply of these much appreciated papers?

One more just complaint on the part of the Colonial photographer is that the amateur, who, in many cases, is a well-paid Government *employé*, is in the habit of selling the productions of his camera to his friends and to the public.

The remedies asked for comprise license fees for all photographers and photographic agents, and a heavier duty on imported pictures. It is believed that such a course will go far to stop the evils complained of, and there are signs that the Government will not turn a deaf ear to the petitioners.

Messrs. Morgan & Kidd have forwarded us a copy of the Convention group taken by them at Plymouth. It is an enlargement from the original negative, and has been produced on their new Rose Enamel bromide paper, which is specially designed to give fineness of detail both for enlarged positives and those taken by contact. It fulfils its purpose admirably.

LANTERN SLIDE MAKING.

BY CHARLES L. MITCHELL, M.D. (PHILADELPHIA).

THE preparation of lantern slides is a subject upon which so much has been both said and written within the past few years, that it would seem almost impossible to say anything new. And yet, notwithstanding this, the number of really *good* lantern slides made bears but a small proportion to the entire amount produced, or to the large quantities of plates, &c., used for their preparation. So that it seems, perhaps, after all, something might be still said on such a trite and commonplace subject. Having, during the past few years, occupied much of my time in lantern-slide making, I have acquired considerable familiarity with the different methods usually employed in America, and also made some modifications of my own, so that, while not pretending, in the limits of the present paper, to give a complete *résumé* of the subject, it may be of interest if I detail, in a general way, the methods mostly in use by American lantern-slide makers.

The vast majority of lantern slides made in America by amateurs are prepared from gelatine plates, collodion emulsion being very little used, and wet collodion being employed by but few outside the regular commercial slide manufacturers. Perhaps this may be partly explained by a prevailing fondness for the black and grey tones so easily obtained with gelatino-bromide emulsions. There is, however, a rapidly growing taste for warmer tints in brown, and even sepia, or Bartolozzi red. Quite a number of different brands of lantern-slide plates are found in our market, and of varied excellence. Of these, those prepared by the Eastman Company are probably the most popular. I have always used gelatine dry plates for preparing my own slides, and I am a firm believer that, all things being equal, it is quite possible to prepare as good, if not, perhaps, even a better slide upon a gelatine plate than can be obtained by any other procedure, while its convenience and readiness for immediate use render it much to be preferred.

The size of the American lantern-slide plate is always $3\frac{1}{4}\times4$ inches, thus differing from the English size, which is usually square, and $3\frac{1}{4}\times3\frac{1}{4}$ inches. We in America think the oblong shape the best, as it allows of a rather larger picture, gives ample room for the label, and also for taking hold of the slide when placing it in the lantern. We can hardly expect in a country like England, where customs are firmly established, that a change of size would readily be adopted. And yet it is highly desirable, in view of the growing interchange of slides between not only England and America, but also with other countries, that some one standard and uniform size for all should be adopted. The present difference often leads to considerable annoyance on account of fitting the varying sizes into the carriers generally used for the lantern. This difficulty is less in America, however, than in England, for it is always easier to put a small slide into a large carrier than it is a large slide into a small carrier. I notice, indeed, that one English photographic periodical has announced that in future it will receive no slides for competition unless made of the uniform size of 3¼ × 3¼ inches. This is much to be regretted, for it would seem possible in such cases to use an ordinary "push through" carrier, and I hope the example will not prove contagious, for it will tend to check these international exchanges and competitions, and prevent many on each side of the water from becoming acquainted with the best examples of well-known workers.

In the preparation of lantern slides I believe that the majority of our best workers in America prepare their slides by reduction in the camera. I have been informed that in England the reverse is true, the larger number being prepared by contact. I think this difference may partly be ascribed to the fact that the sizes of negatives adapted for contact printing (3¼ × 3¼ and 3¼ × 4¼ inches) are not as popular in America as they are in England. We do not use the 3¼ × 3¼ size at all, and for all small work the most popular size is 4 × 5 inches. This does not lend itself so well for contact work, and hence the reducing camera is more frequently brought into requisition. My own preference is unquestionably for reduction by the camera, even when preparing slides from small negatives. There seems to be a certain quality gained which is sometimes missing in contact work, and, in addition, the process affords many facilities for shading or vignetting different parts of the negative which may need either holding back or prolonged exposure.

The character of the light used is also another prime factor. In my own experience I use two different lights—a south light, where full sunlight falls directly upon a ground glass window; and a north light, where the window is of clear glass and at an angle of about 45° to the horizon, thus securing an even, soft illumination all over the negative. I use one or the other of these lights, according to the character of the negative, as will be detailed later.

Returning again to the subject of lantern-slide plates, I may say that I do not believe it possible, when using all varieties of negatives, dense or thin, to obtain uniform excellence with one grade of plate. This would stand to reason, for a slow landscape plate will give a different negative from one made with an emulsion of high rapidity. I therefore use two grades of plates, one quite slow, giving great contrast, the other several times as rapid. In the former I use the Eastman plate, for the latter the transparency plate made by the Cramer Dry Plate Works, of St. Louis, Mo. These two varieties are used as follows:—Given a very strong, perhaps even harsh, negative, quite dense, and yet with plenty of detail. In order to bring out all the best points of the negative, a strong, intense light is required, and nothing but sunlight seems to answer the requirement. A weaker light will not penetrate the dense portions of the negative, and the corresponding parts of the positive will lack detail. Furthermore, the negative probably possesses too much contrast already, and the endeavour should be to reduce this contrast, and at the same time obtain all the detail possible. I therefore use here the fast lantern-slide plate and fully time the exposure, using a diluted developer. The harshness of the negative is thus materially reduced in the positive, and the rapidity of the plate makes it more susceptible to the weak light coming through the dense portions of the negative, and thus renders the detail properly. Lantern slides made in this manner are usually quite warm in tone.

Now, on the contrary, suppose a soft, thin negative full of detail, but with comparatively little density. Here the advantage of the slow plate and the soft north light becomes apparent. This soft, even illumination is amply sufficient to penetrate any part of the negative, and yet, not being so intense as the sunlight, does not so rapidly overtime the plate. The slow lantern-slide emulsion is amply sensitive enough to render the detail perfectly in all parts of the negative, and with a moderately short exposure gives good contrast and brilliancy much exceeding that of the original. It is thus possible to obtain from an inferior negative quite a crisp and brilliant lantern slide. The tones obtained by this method are usually grey or black.

For a developer, I use a mixture of eikonogen and hydroquinone in the proportion of fifteen parts of hydroquinone to eighty-five of eikonogen. Eikonogen by itself does not always give the brilliancy or the density desired, but this is easily obtained when a small percentage of hydroquinone is added. The development of a lantern slide is an entirely different matter from that of a negative. In the latter, the time of exposure, and the intensity of the light, are always, to a certain extent, unknown factors, and the developer must be modified according to the necessities of the case. With the lantern-slide plate, the developer, as far as regards the proportion of reducer and alkali, is always the same, so also is the lighting of the negative. The developer should, therefore, be of a standard strength ascertained to give the best results with a normal exposure, and then, when making the exposure, it must be shortened or lengthened until the desired result is obtained. It will not do here to give a short exposure, and then push development by adding more alkali. The plate will soon fog, and an amount of fog which might perhaps be allowable in a negative would be fatal for a good lantern slide. Nor will it do to over-time, and then restrain development with a bromide, for we will be apt to get harshness, much density, and opacity in the shadows, all fatal defects for a good slide. What should be sought is a correct exposure, then a normal developer, and as the former is always under our control, it is better to reject a few plates, and change the time of exposure until we have it just right, than it is to attempt to modify the developer.

The question of tone here comes in for consideration. This is a matter influenced, first, by the plate, next by the developer, next by the character of the light, next by the exposure, and, lastly, by the negative itself. As I have before remarked, the cool grey and black-and-white tones are preferred by many in America. There we use eikonogen, hydroquinone, ferrous oxalate, or pyro soda—all developers producing black or grey tones. The warmer tones in most of the slides made by English workers are, I am told, due largely to the use of pyro and ammonia as a developer. Still, for true warm tones gelatine can hardly be made to equal those obtained with collodion emulsion, either washed or dry. It is quite possible, however, with a strong negative, a sunlight exposure, a little over-timing, and a developer well diluted with water, to obtain quite warm tones with an ordinary gelatino-bromide emulsion.

As far as regards fixing, there is nothing superior to the acid fixing bath, now so well known. It prevents staining, and clears the plate thoroughly.

The plate should always be varnished, to protect it from the effects of moisture. I use for this purpose the "Zapon" varnish, a solution of nitro-cellulose in amyl-acetate and wood alcohol.

As regards matting, the square opening, with rounded corners, is used by us for all commercial slides. Amateurs who make their own slides vary the opening, however, making it oblong, upright, oval, or round, according to the artistic treatment of the picture.

In labelling the slide, a thumb label is placed on the lower left-hand corner of the face of the slide, while the descriptive label is placed on the opposite end (right hand), sometimes on the face, but more usually on the back of the slide.

Much might yet be said regarding the arrangement of the negative, apparatus for varying its position (so that either the whole or but a portion can be used), the choice of lenses, varieties of cameras for reducing purposes, &c., but it would occupy too much time. The few extremely general remarks that I have made on the subject of lantern-slide making will, I trust, serve to indicate some of our most usual methods of working, and present, perhaps, one or two novel modifications of the orthodox and regular modes of procedure.

THE MANUFACTURE OF GELATINE DRY PLATES.

BY J. DESIRÉ ENGLAND.

(*Concluded from page* 463.)

THE emulsion, already set, is taken up with a wooden spoon and placed in the net, then gently press the muslin, and the emulsion will be forced through it in very fine shreds and in very good condition for washing. The best method of washing is to tie up the finely divided emulsion in a muslin bag and place it in a jar of water (a covered jar, of course); allow it to wash for four or five hours in frequent changes of water. All the soluble salts must be quite removed. There are other methods of freeing the emulsion from soluble salts, one of which is by means of the centrifugal separator, with which the emulsion, before adding the bulk of the gelatine, is put into a rotating vessel and rotated at a very high speed. Another method is, after adding the bulk of the gelatine and cooling slightly, pouring the emulsion in a thin stream into methylated spirit. [The ammonio-nitrate emulsion was here tested and found to have passed into the green stage.] The temperature of an emulsion containing ammonia should never exceed 120°. In precipitating with alcohol, one must use several times the volume of emulsion, which should be allowed to get somewhat cool. As you see, the gelatine is coagulated entirely by the spirit, and the soluble salts, being soluble in spirit, are left behind; after that, the alcohol is poured off, and, after one or two rinses in water, the emulsion is put on to melt. The first-named method is the most practical, but you must take care that the emulsion is thoroughly cooled before squeezing, and that the water is quite cold, or else you will find, when you come to make up the bulk, that you have three or four ounces too many, and, of course, the emulsion will be proportionately thin. The emulsion should be melted at a temperature not exceeding 110°, and, when melted, it is advisable to add about 5 per cent. of methylated spirit in order to make the emulsion flow more easily in the coating, and a little chrome alum to prevent frilling—say from one-eighth to one-fourth of a grain to each ounce of emulsion, varying with the make of gelatine and the temperature at which the plates are to be used. The next process, after we have got this melted, is to filter it, and for small quantities I find swansdown tied over a lamp-glass makes a very good filter. You can get full pressure by filling it right up, and if it does not flow fast enough, you can blow into it. The swansdown must, of course, be fastened fluffy side in, or else the fluff would come off into the emulsion after filtration. Care should be taken in this operation to run the emulsion into the vessel as quietly as possible, in order to prevent the formation of air bubbles. The next operation after getting the emulsion filtered is to coat the plates, for which purpose an accurately levelled slab is required. The glass should first be well cleaned with a glass cloth and a little methylated spirit, and one must be very careful while brushing the surface not to let the dust get into the emulsion. The vessel I am using as an emulsion-pourer is an invalid's cup, which answers the purpose very well. The quantity left upon the plate will depend very much upon the character of the emulsion. If it is a very rapid emulsion, the particles of bromide being coarse, you will require a very much more thick coating than with a slower one. It is sometimes as well to steam the glass before coating, which is said to cause the emulsion to flow very much better. After coating, and as soon as the plates are accurately levelled, the sooner they are set the better; because, being a very thin layer, the bromide of silver has a tendency to fall through the gelatine and settle on the glass, and produce frilling, and fog, and other bad things. The temperature of the emulsion for coating should not exceed about 100° or 105°, and, of course, it depends very much on the nature of the gelatine and the quantity of it employed in the emulsion. I will not attempt to describe the coating machines, except to say that in principle they consist of a long table, at one end of which is the apparatus for spreading the emulsion. The glasses are fed in at one end and pass on bands under the coating trough, where they receive the proper quantity of emulsion. They then pass through tunnels cooled with ice, and by the time they reach the other end of the table are quite set and ready for stacking on racks to dry. In very hot weather to make the plates set well it is a good plan to have a box the size of the slab, and two or three inches deep—a wooden box lined with zinc—and having three screws for levelling. Ice is placed in the box, and the slab being thus kept cool, the plates will set very quickly. [The boiled emulsion was again tested, and was found to have made a little progress, but not much.] We now come to the drying of the plates, and for a small quantity there is no better form of drying box than that devised by my father some time ago. [Mr. England here sketched the apparatus referred to.] The temperature should be kept at about 80° to 90°, and the plates should be dry in from eight to twelve hours. When dry, the plate should present a quite even surface, free from spots or markings by reflected light. The surface will vary according to the nature of the gelatine used and also the rapidity of the plate, a rapid emulsion giving a more matt surface.—*Journal and Transactions of the Photographic Society of Great Britain.*

ANASTIGMATIC APLANATISM AND THE ZEISS ANASTIGMATIC LENSES.*

BY DR. PAUL RUDOLPH (JENA).

THE anastigmatic lenses of Zeiss made their first appearance scarcely two years ago; nevertheless they have attracted the general attention of the photographic world, and, despite considerable adverse criticism, have proved a great success. It would, therefore, be interesting to examine the special features to which these new objectives owe their popularity. Over 7,000 lenses have now been sold, and though there are still many professional photographers and amateurs who have not had an opportunity of testing the powers of the anastigmatic lenses from personal experience, it may be assumed that nearly every one has heard of them or has seen photographs produced by them. The Zeiss anastigmatic lenses are well adapted for portraits and groups, for copying and enlarging, for interiors and flashlight exposures, and for outdoor instantaneous photography, for architecture, landscape, and photogrammetric work. Experts unanimously pronounce the Zeiss anastigmatic lenses to be superior to the older objectives, and praise their extensive range of applicability. We may refer to the respective writings of Koster, Faber, Wallon, Eder, Vogel, and others. The following remarks are based upon the criticism of these experts, and in particular upon a paper read by me in March, 1892, in the Free Photographic Association of Berlin.†

The Zeiss anastigmatic lenses are dissymetrical doublets, consisting of an achromatic interior part whose *flint* has the higher refractive index, and an achromatic posterior part in which the *crown* has the higher refractive index. These two cemented parts of the doublet possess, therefore, opposite differences of refractiveness in the crown and flint glasses employed for achromatisation.* This embodies the important principle by which it became possible to effect anastigmatic aplanatism of a system of lenses corrected spherically and chromatically for large apertures.

The series of new glasses produced about six years ago by the glass works of Messrs. Schott & Co., of Jena, rendered it possible to practically realise this principle in the construction of the Zeiss anastigmatic lenses.

Let n_f, n_c, n_d, be the refractive indices of a certain glass corresponding to Fraunhofer's lines, F, C, and D, then the ratio $\frac{n_f \quad n_c}{n_d \quad 1}$ represents the relative dispersion for the interval C-F. With the older series of glasses this value increased in a measure as the refractive index increased, *e.g.* :—

$$\text{Crown of } n_d = 1{\cdot}5166 \text{ had } \frac{n_f - n_c}{n_d - 1} = 0{\cdot}01643.$$

$$\text{Flint of } n_d = 1{\cdot}6129 \text{ had } \frac{n_f 1 - n_c 1}{n_d - 1} \quad 0{\cdot}02708.$$

In order that the anastigmats may be constructed, it is, however, necessary a range of glasses in which any given refractive index may be coupled with any desired dispersion. This postulate is realised, *e.g.*, by the following glasses made by Messrs. Schott & Co. :—

The sodium lead glass, flint $n_d 1$ 1·5205 of relative dispersion, 0·01956.

The barium-silicate glass crown n_d 1·6112 of relative dispersion, 0·01747.

The refractive index of the former, viz., 1·5205, would, in the older series of glasses, necessarily imply a relative dispersion of 0·01700, while to obtain a refractive index of 1·6112 with the other glasses the relative dispersion would have to be about 0·02700, *i.e.*, 60 per cent. higher.†

All photographic lenses preceding the anastigmats had either a very much curved field, or, if flat, an astigmatic field. In the latter case the image was perfect in the centre, but the quality of the image declined towards the edge.

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* Translated from the German MS.

† *Photogr. Wochenblatt*, Berlin, 1892, Nos. 18 to 21.

† "Crown" and "Flint" are here placed in opposition, not with respect to their chemical composition, but are considered with respect to their *optical properties*. The same glass may therefore appear in two different achromatic combinations as lenses, either as "Crown" or "Flint" (*vide* Eder's *Jahrb.*, 1891, p. 221, Rem.). In the following remarks "Crown glass" is always understood to refer to that glass of a binary lens which is less in *relative* dispersion, while the term "Flint glass" refers to that glass which has the greater *relative* dispersive power. Relative dispersion is the value represented by the expression $\frac{\Delta n}{n\text{-}1}$, Δn being the difference of the refractive indices for two lines of the spectrum, as a refractive index within these limits.

* Refractive and dispersive power was, with the older glasses, dependent upon each other in a certain manner. If n_d and $\Delta n = n_f + n_c$ were respectively made to represent abscissæ and ordinates, the points so represented formed a fairly straight line inclined to the axis (*vide* Dr. J. Czapski. "Optical Lenses," *Zeitschrift fuer Instrumentenkunde*, Berlin. 1886, pp. 344 and 345) ; n_d was, therefore, a linear function of Δ_n or

$$n_d = a + C \Delta n.$$

It may be useful here to define what is meant by a curved, flat, and astigmatic image.

Let the object be placed in a plane which is accurately vertical to the axis of the objective, or let all the object be at so great a distance from the objective as compared with the focal length of the objective, that the difference of the distances of the different objects may be neglected Then *the field of an objective is* considered to be *curved* if different positions of the focussing screen are required for *sharply* focussing an object point in the axis (centre of the image) and an object point lying outside the centre of the image.

The whole of the older photographic lens types exhibit curvatures of the image, such as to necessitate the distance of the focussing screen being shorter for marginal points of the image than for axial points. The points of distinct delineation are, therefore, situated upon a curved surface whose concave side is presented to the objective. Fig. 1 represents a section of the image surface, and a plane passing the axis of the objective. The dotted line *a* represents the ideal image plane, which intersects the axis in the axial image point, and is at right angles to the axis of the objective, while curve *b* represents the actual surface of the image.

The *field* is *flat* if the position of the *focussing screen* is *the same* for central and extra-axial points—*i.e.*, if the sharply-focussed points are all contained in a plane which is at right angles to the axis of the objective, or if these points lie in the ideal plane of the image.

The image is *astigmatic* if sharp images of *lateral—i.e.*, extra-axial—*points* may be obtained by *two different* positions of the focussing screen. The two images are not exactly similar to the object; one of them shows distortions in the direction radiating from the axis (radial distortion), while the other exhibits distortions in the directions at right angles to the radii (tangential distortion). This fact may easily be demonstrated by means of an "aplanatic" lens, say, by using a small circular disc having a diameter of only a few millimetres situated *outside* the axis, and attempting to sharply focus it. With the nearer position of the focussing screen, the image of the disc appears as a radial line of a breadth proportional to the diameter of the disc. With the longer distance of the screen, the image is an arc of a circle concentric to the axis of the objective (tangential distortion). The lengths of the radial and tangential portions of a line are essentially dependent upon the difference of the two positions of the screen, and increase continuously from centre to margin in the case of the "aplanatic" lens. With objectives yielding astigmatic images, there are thus two image surfaces conjugate to one and the same object plane. These two image surfaces touch each other in the axial image point, and the distance between them increases continuously from centre to margin. "Mean curvature" may be defined as that surface which represents the arithmetical mean of the deviations of the two image surfaces from the ideal surface. The dissimilarity between the details in the two image surfaces *inter se* and the original increases from the centre to the margin. The following is an interesting experiment:—

Arrange in one plane (Fig. 2), along the radii of concentric circles, bright discs. The angles between the radii should be chosen according to the astigmatic aberrations and the focus of the objective. Direct the axis of the objective at right angles towards the centre of the system of radially-grouped discs, and focus one of extra-axial discs. The image obtained at the shorter distance of the focussing screen from the objective is, as Fig. 3 shows, a portion of a radial line which, in proportion to the curvature of the image plane, becomes more and more indistinct towards either side, and is more or less interrupted radially in proportion to the degree of astigmatic deviation. Fig. 4 is an image obtained by focussing a disc on a circle, situated midway between the axis and the outside circle. It will be seen that images of all the discs grouped along the same circle are of the same degree of distinctness or indistinctness, and also exhibit the same amount of distortion.

Focussing at the greater distance of the screen shows the object (Fig. 2) tangentially distorted. The image becomes thus composed of a series of circles concentric to the centre of the image, which are more or less interrupted, or perfectly uninterrupted. The discs grouped along another circle, which had not been sharply focussed, are similarly distorted, though in a less marked degree.

If, now, a screen having drawn upon it concentric to the axis of the objective circles and radii be substituted for the system of discs, the astigmatic objective would reproduce the original with partial similarity, but both systems of lines could *not simultaneously* be delineated with the same position of the screen. The shorter distance would yield sharpness of the radial elements, the circles at the same time being badly defined; the longer distance would show the circles sharply, and at the same time the radial elements badly defined.

A sufficiently large screen bearing the two systems of lines, radial and concentric circular lines, appears thus to form the most natural test for astigmatism. Such a screen would, however, be too uniform and too little adapted for exhaustive tests.

The screen of 2×2 metre area, as it is used in the photographic laboratory of Carl Zeiss, of Jena, is for this reason arranged somewhat differently, and it may not be uninteresting to here give a short description of it. Upon strips of paper of 18×21 in area two systems crossing each other at right angles of parallel lines of varying thickness, and placed at varying distances from each other, and the strips themselves are fixed to the screen with one of their ends at the centre of the screen, and their sides parallel to the sides of the screen in such a manner that in each strip the radial and tangential lines alternate. The middle of the screen contains a field consisting of rectangular cross lines, which is intended for testing sharpness of definition. The tangential parallels form substitutes for the system of concentric circles, while the radial parallel lines take the place of the radii proceeding from the centre. The difference between the two positions of the focussing screen for sharp delineation of the marginal portions of the systems of straight lines represents the astigmatic difference. For the purpose of demonstrating the incorrectness of the image caused by astigmatism, the screen has square fields of more or less fine rectangular cross lines diagonally attached to it in such a manner that in one case the system of lines is parallel and at right angles respectively to the diagonal, while in the other case they are inclined at 45° to the diagonal. The screen has also samples of writing and printing attached to it.

When focussing square cross lines at the edge of the image, the astigmatic objective produced in the two characteristic cases furnished by the test screen the following deformations :—

1. The straight lines composing the net at the edge of the image are parallel and at right angles respectively to the direction of the radial lines.

In this case—represented by Fig. 5, in which A is the point of intersection of the axis of the objective and the plane of the object, A′ that of the axis and the plane of the image—sharp focussing of the tangential lines causes the lines which are at right angles to the radius to appear nearly sharp, while the lines which are parallel to the radius are almost entirely invisible (image *a*). Focussing of the radial lines produces the converse of the last test. The lines parallel to the radius appear sharp, the lines at right angles to it disappear (image *b*). Mean focussing results in a totally ill-defined image, and eventually in more or less marked reversion of the cross lines, such as a black net in a white field.

2. The straight lines of the net are inclined at 45° to the radial direction. In Fig. 6 let A and A′ again be the point of intersection of the objective axis with the plane of the object and image respectively. Tangential focussing causes the rectangular cross lines to be distorted so as to present the appearance of tangentially elongated hexagons, and, in the case of great astigmatic difference, it may result in almost precise commutation of the cross lines into a *single* system of tangential lines (image *a*, Fig. 6).

If we focus between these two limits, the net may, similarly as above, eventually be reversed so as to appear as black points in a white field ; the same effect may also be produced in anastigmatic images by unsharp focussing. Similar results of a more or less marked character may be obtained by replacing the quadratic net by one formed of oblongs, rhombi, circles, &c.

(*To be continued.*)

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CORRESPONDENCE.

PROFESSIONAL PHOTOGRAPHERS AND THE N.A.P.P.

Sir,—You have had letters from time to time complaining of the want of unity amongst professional photographers, also hinting at the alleged inactivity of the N.A.P.P. in not bringing about the said unity, and, curiously enough, chiefly from writers who have taken no visible part in the work. I am writing to inform your correspondents and the profession generally that a meeting will be held at Anderton's Hotel, Fleet Street, on November 10th, and beg that all who are interested in the future of professional photography will attend. The two Photographic Exhibitions will be open at that date. The time of meeting will be advertised.

9, and 10, Baker Street, W., July 19th. Thos. Fay.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

13,354. Samuel Dickinson Williams, Moorlinch House, Clytha Park, Newport, Monmouthshire, "An Improved Frame or Holder for Photographic Films or Plates."—*July 10th*, 1893.

13,373. James William Fawcett, 55, Chancery Lane, London, "Improved Means for regulating the Rays of Light passing through Photographic Lenses."—*July 10th*, 1893.

* * *

PROCEEDINGS OF SOCIETIES.

Amateur Photographic Association.

A Council meeting to award the prizes was held on Tuesday, July 11th, at 58, Pall Mall, the Right Hon. the Lord de Ros in the chair.

The minutes of the last meeting having been read and confirmed, the following were elected members :—R. Darlington, Esq., F.R.G.S., Lady Agnes Dalton Fitzgerald, Newton W. Emmens, Esq., and James Gale, Esq., LL.D.

The following resolution was proposed by Mr. Milne, seconded by Mr. Howard, and passed by the Council : "That in the event of exhibitors sending in their own prints for competition, members be allowed, in future, to print clouds into their pictures, it being understood that the clouds added are from negatives taken by *themselves*, and that a notification to this effect be stated on the exhibit."

The Hon. Secretary (Mr. A. J. Melhuish) stated, in reference to the "British Museum of Portraits," that in accordance with the wish of the authorities at South Kensington Museum, he proposed in future to send, affixed at the back of each portrait, the place and date of birth, and such other particulars as each person choses to send, with their autograph at the foot. This was approved by the meeting, and it was considered that it would greatly enhance the value of the collection.

The Secretary then laid before the Council the pictures for the current year, which had been arranged and classified by Mr. Glaisher. Class 1 consisted of 160 pictures (the largest number of first-class pictures yet contributed). Class 2 comprised 130 pictures, and the remainder were contained in Classes 3, 4, and 5.

The pictures in Class 1 were contributed as follows :—C. Stephens, 4 ; Lord de Ros, 1 ; R. Murray, 6 ; F. E. Currey, 1 ; W. S. Hobson, 4 ; F. T. Schwabe, 4 ; Major Board, 4 ; General Sladen, 2 ; R. O. Milne, 17 ; R. Leventhorpe, 11 ; the Earl of Rosse, 2 ; J. T. Black, 3 ; M. de Dêchy, 8 ; Col. Foster, 3 ; F. G. Smart, 8 ; Arthur Dresser, 12 ; H. Emmons, 6 ; Mrs. Wrigley, 12 ; E. F. Scougal, 1 ; E. Kennard, 5 ; Viscount Maitland, 6 ; Jerome Harrison, 31 ; and Lady Agnes Fitzgerald, 1.

Besides these, some very large bromide enlargements were exhibited by Mr. Milne, which were greatly admired.

The following prizes were awarded :—First prize to R. O. Milne, a large silver goblet, for Nos. 49, 51, and 52 ; second prize, a silver goblet, to R. Leventhorpe, for Nos. 235, 237, and 238 ; third prize, to Jerome Harrison, a silver goblet, for Nos. 5, 8, 117, and 123 ; Arthur Dresser, a silver medal, for Nos. 29 and 89 ; H. Emmons, a silver medal, for Nos. 1, 2 and 3; F. G. Smart, a large landscape album, for Nos. 53, 54, and 57; M. de Déchy, a portrait album, for Nos. 1 and 77; R. Murray, a portrait album, for Nos. 292, 298, and 299; Mrs. Wrigley, a medal, for Nos. 20, 21, and 23; Major Board, a medal, for Nos. 13 and 14; Lady Agnes Fitzgerald, a medal, for No. 5; E. Kennard, a medal, for No. 6; Col. Foster, a medal, for No. 13.

It was proposed by Mr. GLAISHER, "That a special medal be given to Mr. Milne for his magnificent enlargements." This was seconded by Mr. HOWARD, and passed.

Mr. Dresser's pictures of the Wild West were specially noticed as being of exceptional interest.

A vote of thanks was proposed by Mr. MILNE to Mr. Glaisher, for the time and care spent by him in arranging and classifying the pictures. This was seconded by the Earl of ROSSE, and passed.

LONDON AND PROVINCIAL PHOTOGRAPHIC SOCIETY.

July 20th.—Mr. W. E. DEBENHAM in the Chair.

MR. J. A. SINCLAIR showed a hand camera by Messrs. Adams. Novel points were, that the finders were hinged, so that the lenses could be cleaned; that the shutter was arranged so that it could be regulated to any speed between one second and the one-hundreth of a second; and that the back could be swung, or by being lowered made the equivalent of a rising front.

The CHAIRMAN had always urged the desirability of having a rising front to any camera where buildings might have to be taken. The swing-back he considered a dangerous power.

Mr. T. E. FRESHWATER wished to know what advantage there was in using pink or mauve albumen paper instead of white, and what was the cause of the colour sometimes washing out. He showed prints varying in this respect.

The CHAIRMAN pointed out that the colour was least where the albumen coating was thin, and that near the edge, where the cracking showed the albumen to be thickest, the pink colour was strongest.

Mr. A. MACKIE had noted that where the pink colour of paper faded by light, the effect was to suggest fading of the silver print.

Mr. J. S. TEAPE said that Mr. Haddon had said that he had failed to tone prints on platinum paper prepared by himself. He (Mr. Teape) showed prints on commercial platinotype paper, which he had toned to a warm brown colour by immersion in the ferricyanide and uranium mixture used for toning bromide paper. As it had been suggested that there must be silver present when this kind of toning was effective, he had, before toning, treated the prints first with bichloride of mercury and then with hypo, followed by a good washing. Long soaking dissolved the uranium and removed the toning as with bromide prints. The prints could be toned a second time, but the action was much slower.

A MEMBER suggested that it might be mercury in this case which was being toned.

Mr. HADDON suggested cutting a print into two portions, treating one with and the other without the preliminary mercury bath, and noting the result.

A short discussion took place as to the susceptibility of the platinum image to attack by the solution used for toning, and Mr. A. MACKIE said that if a silver print is toned with gold as far as possible, the image might be absolutely removed by the application of ferricyanide and hypo—Mr. Howard Farmer's reducer.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

THE first of the new series of Instruction Evenings was successfully brought off on the 19th inst. The subject was "Development Modified to Soften Harsh Contracts or Under-exposure."

As the lecture and demonstration were for the benefit of tyros, an elementary statement of the generally-accepted views as to the action of light upon the sensitive plate was given, and the properties of the reducing agent, the restrainer and the accelerator explained. The reasons for and against the use of sulphite of soda as a preservative were stated, and beginners were advised either not to use it at all, or in smaller quantities than generally given. Messrs. Hurter and Driffield's views of the impossibility of altering density ratios by development were briefly stated, and Mr. C. H. Bothamley was quoted as showing that, while the density ratios might be unalterable, the printing qualities of the negative and their modification were well within the hands of the worker. For the purposes in view the developer recommended was—

Pyro	¼ grain.
Bromide of potassium	½ ,,
Carb. soda up to	12 ,,
Water....	1 ounce.

When the shadow detail was out this developer must be thrown off and a fresh one substituted containing pyro 2 grains, water 1 ounce, no bromide or soda.

Plates exposed at the special outing to Kingsbury, on the 15th inst., were then developed, and appeared to be satisfactory. Prints from them were to be shown at the meeting on 24th inst.

The next Instruction Evening will be on the 23rd August, the subject being "Development Modified to Improve Flat Subjects or Over-exposure." Visitors are welcome.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, Tuesday, July 18th.—The PRESIDENT (Mr. Houghton) in the Chair.

VARIOUS books were added to the library.

Mr. POLLARD showed and explained his reduction camera.

Mr. HENSLER asked how to intensify a film which had had retouching medium on.

Mr. R. BECKETT advised use of turps first to remove retouching medium, and proceeding in the adopted manner.

Mr. BARNES asked the best way to develop an old plate.

The HON. SEC. said use less alkali.

Mr. T. H. SMITH asked what proportions of amidol should be used to develop a much over-exposed Cadett plate.

Mr. BECKETT said reduce the quantity of sulphite solution to quarter the quantity, four grains bromide, and double the amidol.

The HON. SEC. (Mr. W. Fenton Jones) then read a paper on "Exposures, Tables, and Meters." He advised, before actual practice, overhauling camera backs, dark rooms to see if white light was perfectly excluded, and when using lens to cover up diaphragm slot. The sun's position had a great deal to do with time of exposure. Use as large a stop as possible consistent with good defining powers. Rain cleared the air, and many a good picture could be taken when raining. Would not advise judging by amount of light through diaphragm stops. Experience and judgment are best, but a table or meter to start with is advisable. Exposure of bromide plates and papers are best tested by giving varying test exposures and then according, for future use. Plates were not always the speed they purported to be.

Mr. Penny asked was it best to use one table and plate.

Mr. Hensler had used Watkins, but not successfully.

Mr. Nunn had used Hurter and Driffield's, saving himself a lot of plates.

Mr. Hankins asked about Cadett's developer being a quickener up of plates.

Mr W. Fenton Jones said he did not study the developer when exposing, and thought it erroneous. Would advise one plate and one table, and that of a simple kind.

Mr. Avent had used nearly every table in the market, and said that whilst he had found them right around London, in the country they had given him wrong exposure. He was of opinion, too, that a table should be as much simplified as possible.

Brixton and Clapham Camera Club.

An ordinary meeting of the above Club was held on Tuesday, July 18th, at 8 p.m., the President, Dr. J. Reynolds, F.R.G.S., occupying the chair.

A member of the newly-formed Committee of Instruction was present for the purpose of assisting less experienced members in the more elementary principles of photography, and answering questions relating thereto. The attendance of members showed the necessity for forming such a committee, and it is believed that the result of such a step will be to strengthen the number of members of the Club to a considerable extent. This was the first attempt in the history of the Club to form such a committee; and at the meeting two nominations for membership and promises of others were given in.

Mr. Baldwin, of the Eastman Company, gave a very interesting demonstration on Solio paper, and toned several prints by the separate and combined baths with great success.

Members were invited to comply with the request of the P.S.G.B. for a representative set of lantern slides and result of modifications of the several printing processes, and the meeting was then closed.

The next meeting will be held on August 1st, when Messrs. Fuerst Bros. will demonstrate the working of Amidol.

South London Photographic Society.

Ordinary Meeting, 17th July, at Hanover Hall, Hanover Park, Peckham.—The President (Mr. F. W. Edwards) in the Chair.

Messrs. Dicker and Tredray were elected members.

The evening was devoted to the discussion of methods of "Combination Printing." The following were suggested :— Draw round the outline of the object to be printed with a thick pen filled with Indian ink. When the ink is dry, block out the remainder of the negative with black varnish, and, when dry, print. The printed image can now be covered with gamboge or other non-actinic medium (which can be removed during washing), and the balance or such portion of the picture as is required obtained from a second negative. Care must be taken to print both portions equally. If any white lines appear round any portion of the finished picture, these must be filled in with colour, care being taken to match the tint of the picture. Alternatively the second negative may have blocked out a portion of equal shape and size to that printed by the first negative. To print skies in pictures where there is not a large quantity of fine foliage against the sky, a print is made on silver paper, and the landscape portion is carefully cut off from the sky with a sharp penknife or scissors, and the two portions of the print allowed to discolour and used as masks, one being used to cover the landscape negative when the sky is being printed from, the sky negative and the sky portion used when the landscape portion is being printed. Skies must not be printed too deeply, or they will have the appearance of being in advance of the landscape.

The President suggested stripping negatives with cresco-fylma, and cutting out portions of the stripped films and combining them on an old negative glass. By this method prints are obtainable by one printing, and a considerable saving of time effected where a large number of prints are required.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

G. B.—We are investigating the matter, and will let you know the result of our inquiries by post.

Gemini.—If you have a large number of diagrams to photograph in a given time, and you are familiar with the wet process, you cannot do better than adopt that method. It is true that the same result can be brought about by using gelatine plates, but only by a practised hand.

P. D. H. (Southgate).—We have seen similar markings before, and have traced them to pressure marks from paper having been placed between the films in transit from one place to another. We cannot otherwise account for these.

M. P.—Opinions differ as to the permanence of the silver cyanide method of intensification. We have negatives in our possession which were thus treated some years ago, and they show no sign of fading. Its permanence is probably governed by the care which has been exercised in the fixing and washing of the negative previous to its application.

O. S.—The sum named seems overmuch for such a thing; but you should take the advice of a reliable and experienced dealer.

Puzzled.—No. 1 is good, considering the price at which it is retailed, but its scope is limited. No. 2 is better, but No. 3 is far and away the best and cheapest in the end. The last will, too, retain its value, or some of it, should you at any time want to part with it.

X. Z.—Reject any mixture which numbers among its constituents chlorate of potash and any sulphur compound. Use magnesium powder by itself in any good flash-lamp.

Friller.—The only probable reason for this fault is that your hypo bath is too strong. Some plates of first-rate quality will frill if the regulation strength of fixing-bath be exceeded. In hot weather, where there is evaporation to reckon with, the strength should be under rather than over the normal.

T. O. M.—Transfer pictures on paper for making lantern-slides are sold, but they cannot be named in the same breath with those produced by photography. They are mostly illustrative of nursery rhymes and the like; very pleasing to a child, but not to anyone else.

Dirty Dick.—There is no better plan of cleansing the bath than the old one of shaking up the liquid with kaolin, which quickly carries all impurities, including the albumen, to the bottom of the vessel.

W. H.—We do not know of any means by which the gloss of the print can be wholly preserved after mounting, unless you content yourself with sticking the edges only. Or you might mount the print as usual and treat the surface—French-polish fashion—with shellac in alcohol.

PATENT OFFICE

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1822. AUGUST 4, 1893.

NOTES.

THE Pall Mall Exhibition of the Photographic Society of Great Britain, for 1893, will be inaugurated in the usual Gallery by the customary conversazione, on Saturday evening, September 23rd, and the Exhibition will remain open to the public from the following Monday until Wednesday, November 15th. The gentlemen who have been elected by the members of the Society to act as judges are :—Dr. Emerson, Colonel Gale, Messrs. Hollyer, Sutcliffe, and Wellington; while Messrs. Chapman, Jones, and Andrew Pringle will act as scientific experts.

THE *Australian Photographic Journal* publishes a protest against the keen and ruinous competition in prices which is rife just now in Sydney, and it speaks of one firm offering two cabinet portraits for a florin, while another tempts the public with the offer of three for three shillings. It urges photographers to combine amongst themselves, and to form an association with one uniform scale of charges for portraiture.

THERE is a good photograph in the *Scientific American* of the firing of the great Krupp gun which has gone to the World's Fair at Chicago. This is the biggest gun ever sent to an exhibition. It is forty-six feet long and weighs one hundred and twenty-two tons. It will be remembered that at the Naval Exhibition in London our largest gun was represented by a wooden model only.

A FEW weeks back, when writing about the exhibition in Japan of photographs from the London Camera Club, we suggested that it would be very interesting if the Japanese photographic artists were similarly to send over here specimens of their work. The same notion seems to have occurred to the writer of an article—reproduced in our present issue—in the *Japan Mail*, who says, "We are persuaded that if the Japanese would make a serious effort, they might send to London a display of photographs calculated to greatly enhance their reputation, and charm the British public. We sincerely hope that they will do so."

THE same writer tells of photographs in gold and silver on dark lacquered grounds, which are absolutely unique; the process being unknown outside the Japanese atelier where it is practised. More than one method of producing such prints will occur to our readers, the most obvious being by the powder process. A collotype print rubbed over while sticky with gold or silver powder would give very much the same effect.

TOURIST photographers, more than other persons, are directly interested in weather forecasts, for, on a rainy day outdoor work is impossible. They will, therefore, be interested in knowing that careful records at Greenwich tend to indicate that St. Swithin, as a forecaster of rain, is a fraud. Twenty years' observation show that fine weather is more common after a wet St. Swithin's day than after a fine one. Thus has another good old notion gone wrong.

AT the recent annual general meeting of the Society of Chemical Industry, the President, Sir John Evans, K.C.B., alluded to the advances made by photography in the following terms :—"As to the advances in our knowledge of the chemistry of light, the present condition of photography may testify. When we can take the image of a bullet flying at the rate of 3,000 feet per second, with its accompanying cone of compressed air; when we can produce photographs which are practically permanent, and when we call in the action of light to engrave our steel or copper plates, and to produce efficient substitutes for woodcuts, we seem to be getting near the limits of the practical application of photography. And yet many of us may remember the days when the daguerreotype was regarded—and justly so—with wonder; and I can myself call to mind a still earlier form of photography, by which natural leaves were reproduced on paper sensitised with a salt of silver, of which I saw specimens in an exhibition at Dresden so long ago as the year 1839."

An enlargement from one of the first daguerreotypes made by the use of bromine, by which the time of exposure was so greatly lessened, is published in the *American Journal of Photography*. It is a portrait of Dr. Paul Beck Goddard, the man who introduced this important modification of the original formula. Dr. Goddard, according to this portrait, bore a striking resemblance to the late Professor Owen.

We are requested to announce that the Council of the Bristol and West of England Amateur Photographic Association will open their Triennial International Exhibition of Photographs, Apparatus, Appliances, and Processes at the Galleries of the Academy of Arts, Queen's Road, Clifton, Bristol, on Monday, December 18th, and that it will remain open for one week. All particulars can be obtained of F. B. Bond, Esq., the Hon. Sec., whose address is 36, Corn Street, Bristol.

We have received a copy of the rules of the London Chamber of Arbitration, whose headquarters are at the Guildhall, E.C. These rules are simple and easily understood, and the scale of charges for arbitrating on any case in dispute, which otherwise would be taken to the Law Courts, is wonderfully moderate. Arbitrators have been appointed for every trade, and those deputed to deal with matters photographic will, we feel sure, meet with the approval of our readers. The names are as follows:—Messrs. Frank Bishop (Marion & Co.), W. E. Downey, W. England, W. Grove (Window & Grove), G. Houghton, H. S. Mendelssohn, J. Stuart (Ross & Co.), J. W. Swan, H. Van der Weyde, L. Warnerke, T. P. Watson, and A. A. Wood (E. G. Wood & Co.).

Apropos of Arctic photography, to which we drew attention last week, it is not likely that either Dr. Donald or Lieut. Peary will have the annoying experience of Mr. Staveley Hill, Q.C., M.P., whose retirement from the Oxford Circuit is just announced. Mr. Staveley Hill, some few years since, went on a journey to Canada and the Far West, and took with him a camera and a number of double-backs. While crossing the Atlantic, the ship encountered some magnificent icebergs, and Mr. Staveley Hill devoted three of his double-backs upon the icy monsters. He thought a good deal of this achievement, as being probably unique of its kind, and his chagrin may be imagined when the photographer, to whom the work of developing was entrusted, discovered that the backs were empty. The fact was, Mr. Staveley Hill was not a practical photographer, and had entrusted the preparation of his photographic outfit to a firm in the business, and the assistant charged with the duty of filling the backs had carelessly omitted to do so in three instances, and by an unlucky mischance these three backs were bestowed upon the icebergs. The use of sensitised film does away with this risk.

The advocates of what has been called the "fuzzygraph" may be surprised to learn how far-reaching has been the influence of the "out-of-focus." Professor Herkomer says, in the current number of the *Magazine of Art*, "That phase has distinctly got into the sight of the newer school of painters, and, to my thinking, disastrously so. Even in such a genius as Bashin-Lepage we see the distinct influence of this kind of flat-tone photography—an influence that may have been nursed without really much companionship with photography." In opposition to this, which looks like a condemnation of "out-of-focus" photography, Professor Herkomer adds, "To an imaginative mind, so-called imperfect photographs often suggest a poetic aspect of Nature, and are eminently useful as 'suggestors'; some of those misty, out-of-focus photographs are most fascinating, and will often put a painter on a new track, always providing he is a poet at heart, and sees further than the surface of the photograph."

The most enthusiastic exponent of the misty school never claimed so much as this, and it is to be hoped that Professor Herkomer's admiration will not make him lose his head. The quality of "suggestiveness" is an unknown quantity, and has more to do with the person who looks at the photograph than with the photograph itself. The photograph may be utterly bad, but when the criticism upon it is that "it is so suggestive," apparently all its faults are condoned. It is not quite clear what Professor Herkomer really thinks. His utterances on photography are a little mysterious, and not the least puzzling is his dictum that "photography is often irritatingly useless, and the better it is the more useless it is." What may this mean?

The director of the Young Colonists' Aid Society, an organisation which provides situations in Canadian farms for country lads who cannot see any future in England, makes a praiseworthy use of photography. Whenever he takes out a party of these lads he also takes a camera in order to bring away for the satisfaction of relations at home pictures of the surroundings and of the new parents to whose hands each boy has been consigned.

TELE-PHOTOGRAPHIC SYSTEMS OF MODERATE AMPLIFICATION.

BY T. R. DALLMEYER, F.R.A.S.

IF the positive element of a tele-photographic system have a large angular aperture, or a high intensity, say $\frac{F}{3}$ or $\frac{F}{4}$, it is possible to produce a combination of considerable magnification (in a short compass), maintaining at the same time sufficient rapidity for all ordinary purposes. With such a positive element, however, it becomes necessary to introduce a means of correction for spherical aberration when the compound system is used for any but one extension of camera, and one particular distance of object. The advantages of this type of lens have already been described, as also the manner in which the necessary corrections referred to have been carried out.

Now, if the positive element have only a moderate intensity, say $\frac{F}{8}$ or less, and the magnification required be not great—in other words, if the focus of the negative element combined with it to form the tele-photographic system is not too small a fractional part of the focus of the positive element—the compactness of the tele-photographic system is maintained, and, further, the amount of spherical aberration introduced for planes other than that for which it is constructed becomes a negligible quantity. Again, with a comparatively weak negative, the latter can be made of considerable diameter, so that there is the compensating advantage of a greater angle than it is possible to include as against the loss of magnification.

I was, at first, inclined to think that a special construction involving comparatively weak magnification in ordinary lenses of the rapid rectilinear type was unnecessary, as most cameras, for a given size of plate, will permit of sufficient extension to utilise one combination only of the doublet designed to cover that plate, and so obtain an image of double the linear dimensions. Further consideration, however, has led me to think that there are advantages of sufficient weight to merit a special construction. The chief disadvantage of using one-half of a doublet is that it requires stopping down in order to cover the plate properly; and, again, there are, of course, only the two definite focal lengths possible with the one lens—*i.e.*, both combinations, or one alone.

By the use of a negative attachment to the doublet lens, the full aperture can be maintained, and a wide range of foci can be obtained by the employment of one negative lens only in conjunction with it, controlled only by the separation of the nodal planes of the two elements (but, in practice, by the camera extension). Moreover, the one positive lens, used in conjunction with a battery of several negative lenses, each of different foci, can be made to give any focus one chooses longer than that of the positive used alone, and to include any less amount of angle that one may choose.

After careful investigation, I recommend that the rapid rectilinear type of lens ($\frac{F}{8}$, or even $\frac{F}{7}$) should be combined with a negative lens of half its focus to form a really useful tele-photographic system. (If the negative is less than half the focus of the positive, there is danger of introducing outstanding aberration for any but one extension of camera, and for other than parallel rays; this aberration is only removed by stopping down the positive lens, reducing both angle included and rapidity.) Negative lenses in this proportion of foci can be made of larger diameter than the lenses of the positive element, and a considerable angle can be included, and necessarily greater equality of illumination is attained than when the negative lens is of smaller diameter than the positive. With the proportion of foci recommended, the attachment to the positive lens is not inconveniently bulky. Weaker negative lenses can also safely be employed—or, in other words, the focus of the negative lens may be more than half that of the positive; in this case the attachment is shorter, the magnification less, but the angle included greater.

The figure on the next page illustrates the combination of a six-inch focus rapid rectilinear combined with a three-inch focus negative combination. When the foci are known, it is only necessary to know or set the separation of the nodal planes N_1 N_2 to completely determine the equivalent focus and back focus—*i.e.*, the distance of negative lens to screen.

If f and f^1 represent the foci of the positive and negative lenses respectively, a the separation, F the equivalent focus, and BF the back focus, then the following simple *numerical* formulæ give the required information:—

$$F=\frac{ff^1}{a+f^1-f} \qquad BF=\frac{f^1(f-a)}{a+f^1-f}$$

for the case in the illustration;

$$F=\frac{6\times 3}{3\frac{3}{4}+3-6} = \frac{18}{\frac{3}{4}} = 24$$

$$BF=\frac{3(6-3\frac{3}{4})}{3\frac{3}{4}+3-6} = \frac{6\frac{3}{4}}{\frac{3}{4}} = 9$$

Rule I.—To Find the Equivalent Focus of the combination: *Multiply the foci of the two elements together, and divide the result by the sum of the focus of the negative lens and the separation, after having subtracted the focus of the positive lens from this sum.*

Rule II.—To Find the Back Focus: *Multiply the focus of the negative lens by the difference between the focus of the positive lens and the separation, and divide the result* (as in the last case) *by the sum of the focus of the negative lens and the separation, after having subtracted the focus of the positive lens from this sum.*

[Note the importance of the separation as affecting the equivalent and back foci. If, instead of making the separation $3\frac{3}{4}$′, we had chosen $\frac{1}{4}$ of an inch more—*i.e.*, 4″—the equivalent focus of the lens would be 18′, and the back focus 6″ only; and if, on the other hand, we had made the separation $\frac{1}{4}$ of an inch less—or $3\frac{1}{2}$—the equivalent focus becomes 36″, and the back focus 15″. If the sum of the focus of the negative lens and the separation is equal to or less than the focus of the positive lens, then no focus is formed.]

It is interesting to examine the capabilities of combinations by the above rules, and thereby to determine for oneself the suitability of the ratio that must exist between the foci of positive and negative lenses for any particular purpose. The separation between the nodal planes of the two elements is easily *written* for this purpose, but, in practice, is more difficultly measured.

The object of this paper is to place the matter in the simplest light possible, and, happily, there is a simple means of setting to work without any fear of mistake as to the conditions under which the instrument is used.

It rests on the determination of the *magnification* of the image *as compared to the positive lens used alone.*

Calling M the magnification, v *the back focus*, and f^1 the focus of the negative lens :—

$$M = 1 + \frac{v}{f^1}$$

in the particular case—

$$M = 1 + \frac{9}{3} = 4$$

So that, calling F the equivalent focus, and f the focus of positive lens as before—

$$\begin{aligned} F &= fM \\ &= 4 \times 6 \\ &= 24'' \end{aligned}$$

as illustrated in the diagram.

Rule III.—To Find the Magnification for any chosen extension of camera : *Divide the distance from negative lens to screen by the focus of the negative lens, and add one.*

Rule IV.—To Find the Equivalent Focus of the combination for any chosen extension of camera : *Multiply the focus of the positive lens by the magnification.*

Having readily determined the magnification, as also equivalent focus, for a given extension of camera, the next step is to find the intensity of the tele-photographic combination. This is measured by the clear aperture of the positive element divided by the equivalent focus, as in all cases. The intensity values or their equivalents are now always marked upon the diaphragm notation of positive lenses, so that the intensity of the compound system is most readily determined by reference to the intensity of the positive system and the magnification. It is expressed thus :—Calling I the intensity of positive lens, and M the magnification as before—

$$\text{Intensity of system} = \frac{I}{M}$$

in the particular case of type illustrated :

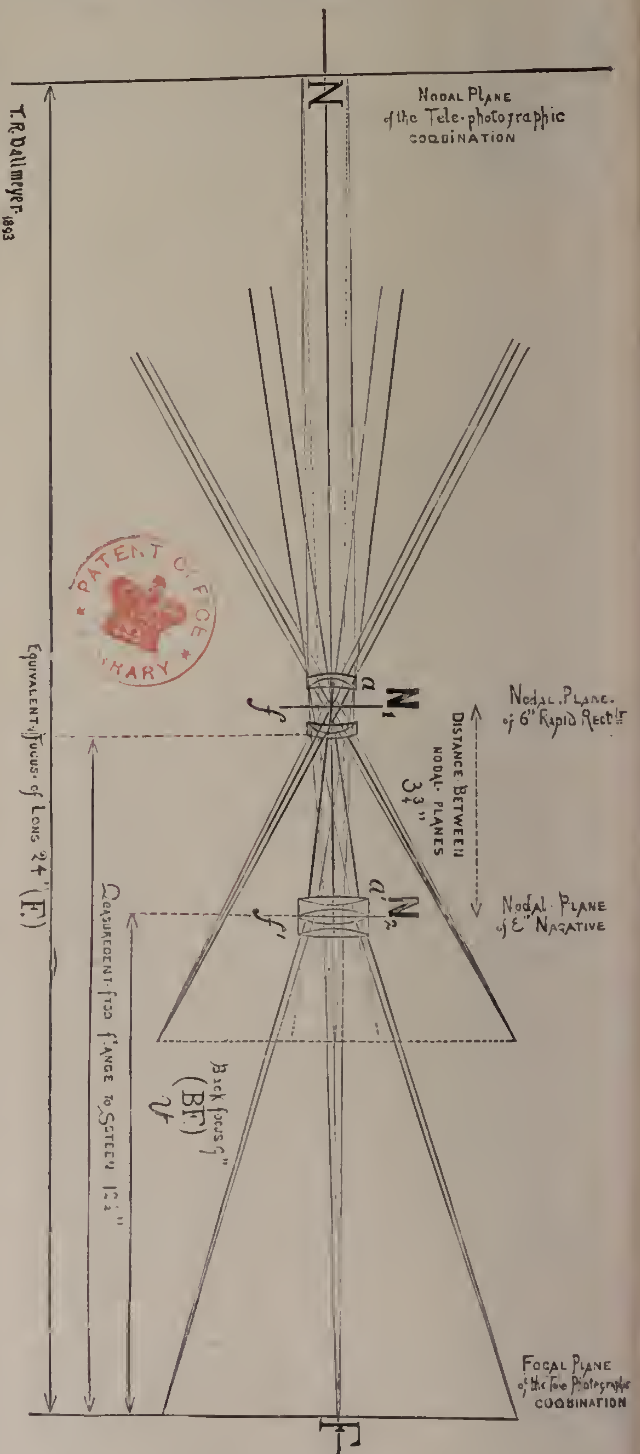
$$\text{Intensity} = \frac{\frac{1}{8}}{4} = \frac{1}{32}$$

In the actual example illustrated, the intensity of the rapid rectilinear is $\frac{F}{7}$, and the intensity of the telephotographic system $\frac{F}{28}$, for the particular extension.

[Note.—With less magnification and less camera extension, the intensity increases.]

Rule V.—To Find the Intensity for a given extension of camera when magnification is known : *Divide the intensity of positive lens by the magnification.*

Simple rules cannot, unfortunately, be given for the remaining to data that should be known to fully determine the capacity of the lens system—viz., the plate that can be covered and the extreme angle included ; but the formulæ to obtain them are readily used.


T.R. Dallmeyer 1893
N
Nodal Plane of the Tele-photographic combination
a
N₁
f
Nodal Plane of 6" Rapid Rect!r
Distance between nodal planes 3¾"
a'
N₂
f'
Nodal Plane of 3" Negative
Equivalent Focus of Lens 24" (F.)
Measurement from flange to screen 12¼"
Back focus 9" (BF.) v
Focal Plane of the Tele Photographic combination
F

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I give them applied to the case illustrated.

(1) To Determine the Diameter of the Plate covered :—Calling D the diameter of the plate, a the full aperture of positive lens $\frac{1}{8}'$, a^1 the full

aperture of negative lens $\frac{6}{4}$, and r, as before, the back focus 9″—

$$D=(r+f^1)\frac{arf^1+a^1f(r+f^1)}{f^1[r(f-f^1)+ff^1]}$$

$$=(9+3)\frac{\frac{7}{8}\times 9\times 3+\frac{6}{4}\times 6\times 12}{3[9\times 3+6\times 3]}$$

$$=12\cdot\frac{113\frac{5}{8}}{3\times 45}=\frac{909}{90}=10{\cdot}1$$

Thus, it appears that, with an extension of 9 from negative lens to screen, a circle of 10″ is covered at full aperture—nearly sufficient to cover a "whole plate." In the diagram, I have indicated the lens as covering only the diagonal of a 5 by 4 plate; but it will be seen that half of the whole pencil incident upon the front of the positive lens is received by the extreme margin of this plate. To find the covering power for any smaller stop inserted in the positive lens, it is only necessary to measure its diameter, and substitute its value in place of a in the formula given.

(2) THE EXTREME ANGLE INCLUDED BY THE COMBINATION is given by the following formula :—Calling a the angle, and F the equivalent focus, as before—

$$a=2\tan^{-1}\frac{D}{2F}$$

$$=2\tan^{-1}\cdot\frac{10{\cdot}1}{48}=2\tan^{-1}\cdot 21041\dot{6}$$

From the table of natural tangents we find tan 11° 53′ = ·21043, and hence the extreme angle that can be included is 24° nearly.

When the lens is used to its utmost limits, it will be found that the angle included is approximately a constant for any extension of camera—*i.e.*, with a fixed aperture of the positive element.

It may be well to point out, in reference to the diagram, that a back focus (measured from the negative lens to screen) of only 5½ is really necessary to cover the plate indicated—viz., 5 by 4—if full aperture be used.

To work the matter out practically, we have for this a back focus of 5½″. The magnification $M=1+\frac{5\frac{1}{2}}{3}=2{\cdot}8$, and the equivalent focus $F=M\times f=2{\cdot}8\times 6=17''$.

$$D=(v+f^1)\frac{avf^1+a^1f(v+f^1)}{f^1[v(f-f^1)+ff^1]}$$

$$=(\tfrac{11}{2}+3)\frac{\frac{7}{8}\times\frac{11}{2}\times 3+\frac{5}{4}\times 6\times(\frac{11}{2}+3)}{3[\frac{11}{2}\times 3+18]}$$

$$=\tfrac{17}{2}\times\frac{1251}{24\times 69}=\tfrac{17}{2}\times\frac{139}{8\times 23}$$

$$=\frac{2363}{368}=6{\cdot}4, \text{ the diagonal of a } 5\times 4 \text{ plate.}$$

Further, the angle taken in is—

$$2\tan^{-1}\frac{D}{2\times F}=2\tan^{-1}\frac{6{\cdot}4}{34}=2\tan^{-1}\cdot 1882$$

And, from table of natural tangents, tan 10° 40′ = ·1883, and thus the angle included is 21° nearly.

I have given a formula for the distance from the *flange to focussing screen* in my paper before the Society of Arts (published March 3rd of this year), but have not given it here, as the "back focus" is most readily measured, and this measurement, as already pointed out, is the simplest cue to all further information that is desired or necessary.

I hope that the very unpopular "formulæ" contained in this paper may not detract from its interest to the ordinary reader, for the formulæ are *readily interpreted* by anyone with a knowledge of arithmetic.

In conclusion, I may add that the effect of the form of negative lens adopted is one that tends, by its moderate power, to flatten the field of ordinary aplanatic lenses without introducing "reverse" curvature; it minimises the tendency, in tele-photographic systems generally, to introduce pin-cushion distortion; it eliminates the violent chromatic fringes brought about by negative lenses of the double concave type, and diminishes the astigmatic aberration in the eccentrical pencils.

◆

ANASTIGMATIC APLANATISM AND THE ZEISS ANASTIGMATIC LENSES.*

BY DR. PAUL RUDOLPH (JENA).

(*Continued from page* 478.)

In order that these relations might be objectively fixed, photographs were taken in the photographic laboratory of the optical works of Carl Zeiss of the test screen, and the photographs so obtained were reproduced by photo-lithography. There are four plates, of which the two most characteristic ones are Nos. I. and IV. Here an "aplanat" and "anastigmat" are subjected to direct comparison. Plate I. was taken with an "aplanat," made by a renowned firm. The objective had a focal distance of 14 cm. and a relative aperture of 1·6, and was stopped down to *f*-12·5. Image and object are in the ratio of 75 to 1,000, and the angle subtended by the object is about 67°.

The centre of the screen is sharply focussed. In this part the delineation is extremely good, a sufficient proof that the objective, *per se*, was a good specimen of its kind. As the margin is approached, the definition, however, loses more and more in distinctness, and astigmatic distortion increases more and more. While the tangential lines are fairly sharp up to the edge, the radial lines rapidly decrease in definition past the third field. In the diagonal squares, the bounding lines of which are at right angles and parallel respectively to the radius, the tangential lines are markedly sharper than the radial lines, the latter being almost invisible, and in the squares, whose sides are inclined at 45° to the radial direction, the distortion at the margin of the tangential lines may readily be observed. The squares appear, in fact, as hexagons.

Plate IV. was taken with a Zeiss anastigmat—viz., anastigmat 1-6·3, 14 cm. focus—all other conditions being the same as those existing in the former case. There, too, the centre was accurately focussed; but barely any traces of those details which point to astigmatic imperfections of the margin of the image will be noticed.

Plates II. and III. were taken with the same "aplanat" as that used for Plate I. In the first case the tangential marginal lines were focussed, in the second case the marginal radial lines formed the critical part of the object. While in the former case the centre appeared to be fairly sharp, in the latter case it was totally worthless. The characteristics of astigmatism, as above explained, become apparent in both plates.

The older types of lenses (aplanatic, antiplanats, portrait lenses, single lenses, &c.) admitted of astigmatic correction, but they could not at the same time be corrected for flatness of field. The Zeiss "anastigmat" was the first lens in which, as we pointed out, anastigmatic aplanatism was combined with the realisation of other requisites of a good photographic lens.

A lens having *anastigmatic curvature* yields sharply defined points from centre to margin. These cannot, however, simultaneously be fixed upon the *plane* negative plate of the photographic apparatus whenever the points constituting the object are nearly in one plane at right angles to the axis, or when they are at a relatively great distance from the objective. If it be desired to simultaneously fix these sharp points upon the plate, it would be necessary to use a *curved sensitive surface* corresponding to the curvature of the image. Clearly the use of such curved sensitive strata is impossible, for it must not be forgotten that for each lens type, each focal length, and even each degree of magnification or reduction, there is a distinct corresponding curvature, to say nothing of the practical inconvenience attaching to curved photographic plates. At present we are, at any rate, limited to flat negative plates. From an optical point of view this is an undesirable limitation, which seriously affects definition and depth of the curved image.

The flat plate must be covered nearly uniformly sharply from centre to edge, unless the objects are grouped on a curved surface corresponding to the curvature of the image. With portrait groups photographers had a means of compensating this anomaly by arranging the persons in a semicircle, in the centre of which the objective is placed. With landscape and instantaneous photographs, however, such an expedient is only rarely, if at all, applicable. In order to obtain tolerable distinctness in the image from centre to edge, it would be necessary to work with narrow angles or to stop the lenses down considerably.

The deficient depth of focus of lens yielding a curved image does, under certain conditions, not become apparent in street scenes. In such cases it may happen that the position of the camera is such that the rows of houses are delineated simultaneously on both sides of the street, the distant houses being thus shown in the centre, the near ones at the edges of the plate. In such a case the curvature of the image may even become the very cause of greater marginal distinctness than is obtainable with the flat field. With all other, and nearly always existing, cases distant objects have to be shown simultaneously at centre and edge, and in such cases it is absolutely necessary to have a flat field.

It is possible to partly flatten the field of the aplanat. This is most conveniently done with those points of the image which are due to the meridional rays—*i.e.*, for the tangential directions in the image. Under these circumstances, one would, however, have to abandon the anastigmatic correction of the image, and to rest content with partial distinctness. Those points of the image which are due to rays contained in a sagittal section yield another image surface (image points of radial directions), which touches the former surface in the axis of the objective, and deviates from it with continuous curvature towards the edge, as already explained.

With angles of 50° this deviation amounts to one-fifteenth; with 70°, to one-sixth: and to 90°, even nearly one-third of the focal length of the lens. The section of these image surfaces by a plane passing through the axis of the lens would present the appearance shown in Fig. 8. Curve *a* appertains to the image points in the meridional section (tangential distortion), *b* to those of the sagittal section (radial distortion). H_o represents the axis of the lens, H_n a principal ray.

This result may be obtained with aplanatic lenses if their halves be sufficiently widely separated. The marginal distinctness is then very defective, and the stopping down has to be carried very far if it is at all desired to obtain sharp definition at the edge of fair definition extending over a considerable field.

An objective having an anastigmatically flat field, such as the "anastigmat," produces, however, a sharp image upon the flat plate, which, as Fig. 9 shows, is bounded by lines T_1, T_2, the latter being parallel to the focussing line E. This objective delineates near and distant objects with the desired uniform sharpness and centre at edge.

(*To be continued.*)

MULTIPLE FILMS.

BY H. S. FRY.

(*Concluded from page* 471.)

SUPPOSING we have to develop a plate which has received, say, three times a normal exposure, generally the best results can be obtained with from three to six times a nominal exposure. Commence development with a weak solution, thus:—

Dilute Tentative Developer.

Stock solution	1 part.
Water	15 parts.
Bromide of potassium (10 per cent. solution)	

About two grains of the latter to the ounce of solution.

This will probably begin to produce an image in from two to four minutes. The highest lights should appear first (although they are in the lower films), and density and detail should grow steadily. The important point to keep in mind is that the high light should be developed by the first solution, rather than the detail. If detail comes freely, the developer may be considered too energetic, and the remedy obvious. If detail comes but little, it is of no importance, for being within the topmost film it can be readily acted upon and drawn out by a more energetic solution, and that without there being time enough for the stronger solution to affect the density-giving sub-film. Should detail grow faster than density, then, as we can only attack the density-giving sections of the plate *through the top film*, we are forced to resort to the first method of development, viz., the use of restraining citrates and bromides to enable the solution to get down into the lower films without overdoing the top layer. But by this procedure we risk making a thicker negative than by cautious development by the second method. In developing abnormal exposures in multiple films, if there be any error, let it be on the side of a too dilute developer to commence with.

The manifest simplicity of Mr. Sandell's method should, I think, commend it, and I suggest it as the easiest one and the most reliable. In case of need, however, density can be obtained by the first method with certainty, but it may become a little difficult to watch the action of development. By the second method, the progress of development can be easily followed, and it is not only not necessary for the image to be lost sight of, but it indicates the use of a too strong and energetic solution, or an insufficiently restrained one. The notion that with a multiple film development must be a closed book I ask you to remove from your mind. There is no such necessity, and, should the image be lost to sight, it is the clearest indication of injudicious procedure. I never expect to see any indication upon the back of a triple film of the image, and when I lose sight of the progress of development I know that it is because I have been impatient or unfortunate in my judgment. In such a case, however, with the reserve force of the multiple film a negative will be the result, where with a simple emulsion extreme flatness would be expected.

I have not mentioned pyrogallic acid development, nor do I propose to advocate any particular developing reagent. Whichever be the reducing agent with which you are best acquainted will be for you the right one to use. It is not the developer (the reducer), but the developer (the individual), which makes the negative. For pyro development, however, I think there is nothing better than the following :—

A.

Neutral sulphite soda	55 ounces.
Boiling water to make	10 „

B.

Pyrogallol	1 ounce.
Nitric acid	20 minims.
Water to make	10 ounces.

C.

Bromide potassium	1 ounce.
Water to make	10 ounces.

D.

Carbonate soda (anhydrous)	1 ounce.
Water to make	10 ounces.

E.

Citrate soda	1 ounce.
Water to make	10 ounces.

B, C, D, and E are not exact 10 per cent. solutions. I prefer the sulphite in a separate solution, and concentrated.

Normal Developer.

Pyro solution	20 minims.
Bromide solution	10 „
Sulphite solution	60 „
Carbonate solution	40 to 80 „
Water to make	1 ounce.

Tentative Developer.

Pyro solution	5 minims.
Bromide solution	5 „
Sulphite solution	60 „
Carbonate solution	10 „
Water to make	1 ounce.

In place of this latter, the normal developer may be diluted from one quarter to one-tenth strength, although I prefer to have a larger proportion of bromide than is in the normal, and an equal strength of sulphite. The latter because, whilst doing no harm by its presence, it enables one to add stock pyro and carbonate to form a more energetic solution without discolouring the film.

Fixation.

There is only one other point to which I need call attention, and that is, that the fixing bath should be new and strong—eight ounces of hypo to a pint of water—and fixing should not be performed in white light. An acid fixing bath works well with multiple films, both hardening the gelatine and brightening the negative at the same time. The best form is :—

Hypo	8 ounces.
Acid bisulphite soda	2 „
Water	1 pint.

With such a fixing bath, complete elimination of the soluble silver salts is quickly performed unless the solution is unduly cold. In this case the remedy is obvious. Warm the fixer to 55° to 60 Fahr.

The *Japan Mail* publishes the following opinion of Mr. Van der Weyde's invention :—"We doubt if the 'Photo-corrector' will find much use at the hands of others than its talented inventor ; unless, indeed, the vanity of the average individual who generally wishes to be represented as he (or more commonly she) thinks he ought to look, than as he is, brings such pressure on the members of the photographic profession that they are compelled to adopt Weyde's invention, and systematically reduce the size of sitters' hands and feet as second-rate painters of a former generation were in the habit of doing."

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, AUGUST 4, 1893.

All Advertisements and communications relating to money matters, or to the sale of the Photographic News, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the Photographic News at the same address.

The Photographic News is issued every Friday, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

The Photographic News.	Yearly.	Half-yearly.	Quarterly.
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Including postage to any part of Great Britain	10 10	5 5	2 10
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Alexander & Shepheard, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. VIII.—False Purity.

> " Wisdom in extremes is folly ;
> truth, when carried to excess,
> ends in wisdom written backwards."
> Ibsen (" Pier Gynt ").

THESE lines are by the famous modern dramatic poet who follows Nature so slavishly as to give no evidence of art whatever in his works. Truth to Nature will not allow him to use capital letters at the beginning of his lines, as other poets do, yet it is an unexpected relief to find that even he, the extreme realist, feels and admits that truth in excess is wisdom written backwards. This applies to photography as much as to any other form of art.

That good art must be based on truth to Nature is admitted by the most conventional, but the word " truth " has become a kind of automatic cry little understood by many who use it.

The aim and end of the artist is not truth exactly, much less fact, it is effect.

I know this sounds shocking to the purist's ear, but it is quite true. There is no doubt he best gets his effect by way of truth, but he uses it as he would a servant, not as a master. The newest critics go so far as to say that effect is not only the aim but the end of art, and will not admit that it need say anything more. It is not good to set up a fetish, even a respectable one. Truth should be classed with the other materials, whether paint, brushes, canvas, cameras, or prepared plates. All must, of course, be properly used or success will be missed, and the greater the ambition the more prodigious the fall if failure ensues, which is as it should be. Fortunately the photographer has always the opportunity of destroying his failures, a privilege, however, of which he seldom takes sufficient advantage.

Besides the Truthful Ones, there are those who honestly have a holy horror of anything they do not think legitimate in photography, but there are more who only pose as strict and proper professors of our gentle art. The standard of what is right is, however, often of their own setting up, and a false one. What is our art that it should be more strictly guarded than any other ? There are proverbially tricks in all trades, and why should we not have some in ours ? This affectation of pure photography is like talking of the " well of English undefiled," of a language that is more than half foreign and the rest American. In painting I have seen the wet paint of a stone wall mixed with sand to give texture, and the effect applauded by the most righteous ; but, by the same people, in photography a little " doctoring " is considered extremely wicked. Now retouching is extremely wicked indeed, and I strongly condemn it myself, not, however, because a little handwork is added to the film, but because it is so often overdone, and so seldom done well. It is blundering that hurts.

Then, again, there is the amiable enthusiast who is quite sure that no good ever has, can, or will come out of anything but purely scientific photography, and proudly boasts, as though it were exceedingly meritorious, that he knows nothing of art. This, however, does not prevent him passing opinions on purely artistic subjects. Combination printing is one of the artistic means that causes him to almost shake his head off as most impure. He does not look at results except for evidence of his theory. We all admit that when two or more negatives are used in one picture, that in unskilful hands the result may be incongruous : but his scientific deduction from this acknowledged fact is that anything that has the chance of going wrong always goes wrong. The last comic scientific writer on the subject gravely asserts that he sees " several curvetting suns " in every combination photograph.

This has the merit of candour; a sublime height of honest confession, which is good for the soul when you have one, that few could reach; but the only deduction I can draw is that he ought to be ashamed to admit it!

What must be the standard of legitimacy set up by these purists? A complete discussion of the subject would take us into the middle of next year. The negative, we know, must be produced by purely photographic means and left in its raw state, but that is only the surface of the subject. What lens may be used and what angle included? May a portrait be taken with a landscape lens, or the reverse? Is a rapid rectilinear or a doublet a landscape or a portrait lens? I confess to using one of these for both purposes, and expect, now I have confessed it, to have it found out by the critics. Would it be a departure from the truth as it is in photographic purity to reduce or intensify, or to varnish the negative, and, if the negative is weak, may a little colour be introduced into the varnish to improve the printing quality, or may it be printed under ground glass? When once we go in for rigid purity in any art we must be careful what we are about. There is another little operation that some of us do by stealth. We are sometimes so depraved as to sun down parts of our prints to improve the much maligned artistic effect. It may well be called by some operators "blushing"! I suppose this nefarious proceeding puts us completely out of court. The mention of this useful operation reminds me of an anecdote of Rejlander, and I cannot help falling into an illustrative digression.

Once upon a time, now almost forgotten, in the golden age in fact, when some of us quarrelled and fought over photography, and esteemed each other all the more; when we

> "Strove mightily, but ate and drank as friends";

when men worked for the art more than their own hand; when there was something to learn, even in the technical part, for it was in the days of the wet process; there was a grand attack on combination printing, led by a writer who was not ashamed of having some knowledge of art. Rejlander was never very useful with the pen, but he had always a quaint fancy at the service of his friends. His contribution to the subject was a picture of pure photographic art, without even a negative to intervene and sully the purity. Nothing, I think, has ever been said on "The Pinhole as a Printer," a subject that is open to discussion. Rejlander used the pinhole for this purpose. He bored a hole with a bradawl in a piece of cardboard, and allowing the sun to shine through it on to a sheet of sensitive paper, used this bundle of rays as his pencil. Moving the cardboard with the hole about, here a line, there a shade, using a smaller hole for the more defined parts, the artist soon produced his work of pure photographic art. It represented a donkey, on whose side was marked the initials of one of our opponents. This picture was toned, fixed, mounted, framed, sent to the exhibition, and, I believe, rejected as frivolous—a precedent that has not been much followed in recent years. And nobody enjoyed the joke more than our friendly opponent—another precedent which is no longer followed.

Now to return to our scientific disabilities. May we use a swing-back, or is this invisibly distorting but most useful arrangement to be denied to us? To go into what is legitimate in printing would lead us into a maze of unorthodox proceedings, to do without which would leave us more than half starved. The scientific allowances to the photographer remind us of Sancho Panza's dinner in Barataria, when he was allowed nothing to eat because everything would disagree with him. The pure photograph would be an actinometer-made article. So correct, so true, so unlike the spirit of Nature, such an artistic lie! Yet how many lose the spirit in looking after the form, and give us in their pictures only the dry bones of Nature,

> "Bare, bald, and tawdry as a finger'd moth."

A word or two above suggests the question, Why should scientists take such pleasure, as they seem to do, in denying that they know anything about art?

There is a fashion in all things. Not only in our material wants, but in our ways of thought and mode of expressing them. For many years everybody professed to know everything about art, and felt ashamed of the ignorance they always tried to hide; others read up so as to enable them to assume a virtue and be dictatorial on the subject; but now it is quite the correct thing with many people, chiefly scientific, to boast that they "know nothing about art," and seem to be absurdly proud of their ignorance. This must be a cruel blow to South Kensington and the promoters of museums and art schools. And it is a very sad thing that in many cases we cannot help feeling that the scientists, in this matter anyway, have found truth at last.

How is this denial of a knowledge of art to be accounted for? I think I have it. Blake said, "Every man is a judge of art who has not been connoisseured out of his senses," and, perhaps, that is what is the matter. The artists, with the best intentions, have been supplying the scientists with more good food than their feeble digestions could stand, and of a quality they could not assimilate. It must be our agreeable duty, in future, to prevent them playing with what they confess they do not understand.

* * *

M. Marié Davy, at one time head of the Physical-Astronomy Service at the Paris Observatory, died on the 16th ult. at the age of seventy-seven.

RECENT DEVELOPERS.

BY E. J. WALL.

A WRITER in one of the journals lately said, "On what grounds and to what purpose this eternal puff of the most recent? Is there a 'fashion' in photography that we must all betake ourselves to the last *haute nouveauté* or proclaim ourselves slovens? Amidol! Metol! Glycin! These are 'the only wear,' and the old clothes are gone to the ragman! But suppose that the old should be better?" I think possibly in the last sentence we may find the reason why we have "this eternal puff"—or I would rather say this eternal experimenting with new things. I take it that there is a general feeling of a desire for progress, whether in technique or art, and that to this desire we must put down the craze for the last new developer, the latest lens, and the latest printing process. If some such healthy feeling did not exist, photography would not have made the progress it has done in the last fifty years.

To our professional brethren, who when working in the studio may be said to work practically under given conditions, not the least of which is to turn out good work which shall remunerate him suitably for his skill, his time and outlay, there is possibly not so much temptations to experiment, especially when experimenting may mean increased expense without any increase of revenue; but to the amateur, to whom expense is possibly not so much an object, and who firmly believes that he may yet discover a panacea for all ills of under or over exposure, or careless or ignorant working, there is a very strong temptation to exchange "old lamps for new."

One of the subjects which has claimed no small amount of attention since our last happy meeting in Edinburgh is that of the new developing agents—amidol, metol, and glycin—and I propose to summarise the results of a few experiments which I have made.

The number tablet of Warnerke's sensitometer was used as a convenient subject to expose with. The light chosen was a Welsbach or incandescent gas burner, the supply of gas being passed through two governors to regulate as far as possible the supply. Commercial plates marked with one batch number and one speed number were bought and exposed one after the other as quickly as possible, and then treated with the various developers.

Mr. Bothamley's standard pyro-soda developer was used for the pyro to obtain a standard. The other developers were modified to try what was the effect of modifying the proportion of the constituents of the various chemicals.

Amidol is a salt of diamidophenol, and is fairly soluble in water, forming a slightly acid solution. It is far more soluble in solution of sodium sulphite, and with a saturated solution it is possible to get as much as 16 gr. of amidol dissolved in every ounce.

The distinctive feature of amidol is that it forms a a very energetic developer in conjunction with sulphite without the addition of an alkali, and for this reason alone I think it is worthy of consideration as obviating any chance of frilling, which was not unknown with eikonogen and hydroquinone when used with caustic alkalis.

The first method of using this developer, suggested by the makers, was to prepare a stock solution of sulphite and amidol, and dilute as required. Such a solution, however, has, I think, given rise to some of the curious contradictory statements we have heard about this developer: but it is now generally accepted that keeping it in this form is certainly not the best way of using it, and I have here a negative which fully bears out this idea. A plate exposed in a studio was cut in two, and part developed with a freshly made solution, the other part developed with a similar solution three weeks old.' The difference is so striking as to need no comment to those who see it. The one part, that developed with fresh solution is dense; the other, developed with old solution, a veritable ghost. As amidol is readily soluble in water or sodium sulphite, there is not the slightest difficulty about making a solution up as required.

Coming now to practical tests, I have tried the addition of varying quantities of sulphite, amidol, and bromide, and I will summarise the results I have obtained.

The normal developer used was amidol 1, sulphite 10, water 100. In this the image appeared in 10 seconds, and development was complete in 5 minutes. Increase of sulphite, in the proportion of 15, 20, 30, merely reduced the time before the appearance of the image and the time of development, but when over 20 parts of sulphite were used the plates fogged very quickly. Increase of amidol also accelerates the appearance of the image and enables one to obtain density very readily; and I may here state that, with some plates I have tried, the amidol has to be increased to the extent of 10 to 15 gr. per ounce before sufficient printing density could be obtained. Dilution of the developer with water delayed the appearance of the image, and tended to thinness of image, though this, of course, can be compensated for by developing longer.

The addition of bromide in small quantities—that is, up to about 1 gr. per ounce of developer—seemed to have little or no influence, but in larger quantities to the extent of 8, 16, and 20 gr. per ounce, the appearance of the image was enormously delayed, and, notwithstanding a development protracted to over six hours, neither density nor as many numbers could be brought out. So far I think that a more certain and reliable restrainer will be found in the use of a weak acid such as citric or acetic.

The influence of the temperature of the developer was tried as follows. A developer was cooled by means of ice till it registered 35 deg. Fahr. In this the image appeared in ten minutes, and took one and a half hours to gain anything like reasonable density, and was then finally too thin. A developer of the same constitution was heated to 70 deg. Fahr., and the image appeared almost the instant the developer touched the plate, and development was finished in two minutes, the plate being slightly fogged.

I have here two negatives developed with amidol, kindly made for me by Mr. Beckett, of Hackney, as examples of ordinary studio work, and he says that negatives developed with amidol or metol do not require so much retouching as pyro-developed negatives, and as he does the best part of his own work he ought to know. I hand these round specially for the benefit of our professional brethren.

Finally, it has been said that plates for development with amidol require less exposure than for pyro. This I cannot believe. I have made a series of very careful tests, cutting exposures down, and I have not found that amidol will fetch more out of the plate—it will not fetch out what is not there—but what it will do is to flash the image up and give far softer results, which are more amenable to after-treatment than the harsh negatives so often yielded by pyro with under-exposed plates.

It has also been recommended to use amidol in conjunction with metabisulphite of potash and an alkali. So far my experiments have only enabled me to obtain a filthy mess of a developer and magnificent examples of dichroic fog, but I intend to try it with other plates, because all plates do not require or stand exactly the same method of working.

It seems to me to be absurd to suggest the use of an alkali when we can get such excellent results without it, but Dr. Stolze suggests keeping a stock solution of amidol and metabisulphite, and then at the moment of using neutralising with bicarbonate, not carbonate, of potash; but so far I have not been able to obtain better results with this than by dissolving the amidol in plain sulphite just before use.

Metol is the sulphate of methylparamidometacresol, and is a glistening powder of faint buff tinge. It is soluble in water to the extent of 2½ parts—100 of water. In solution with sulphite it forms a colourless solution, which keeps its developing power, so far as I can see, unchanged, thus having the advantage of amidol in this respect. Like amidol, it develops without the addition of alkali when used with sulphite, but the images are extremely thin and weak. The alkaline carbonates of potassium and sodium may be used, and of the two potash gives a quicker developer and rather more density, soda having a tendency to a slower development and softer results. Bromides act in small quantities merely by delaying the appearance of the image and prolonging development. I developed some plates with 8 to 16 gr. of bromide to the ounce of developer, and with the latter quantity the image was twenty minutes in making its appearance, and, after six hours' development, only four numbers were rendered visible. In small quantities, however, bromides seem to have far less action than with pyro and some of the other developers.

A normal developer may be considered to be one containing metol 3 gr., sodium sulphite 30 gr., carbonate of potash or carbonate of soda 15 gr. to every ounce. If distilled water be used there is no necessity to use so much sulphite, and I have not been able to detect that the omission of the sulphite has any ill effect on development beyond a slight tinge given to the gelatine. Increase of the alkali tends to produce harder results—that is, the higher lights are denser than the lower. Dilution with water produces greater softness, whilst increase of metol causes again greater density.

Testing as to the influence of temperature, I found that at 35° F. development was unduly protracted and only thin images obtained, but in no case could I get a lower number, whilst heating the developer caused fog. I again tried with metol to see whether it brought out more than pyro, or, in other words, whether it permitted of a reduction of exposure, and I am compelled to say that my results were distinctly contradictory to this statement. The main advantage of these two new developers is that within reasonable limits, in fact I do not think I should be far out if I said it was impossible to obtain that hardness which is so easy to obtain with pyro and slight under-exposure.

Glycin is oxyphenylglycin, and is a pinky-salmon powder, smelling strongly of carbolic acid, not very soluble in water, and more soluble in sulphite solution or an alkali, when it forms a colourless solution which seems to keep well as a normal developer. I have used glycin, 5 gr.: carbonate of potash, 25 gr.; water, 1 oz., and find that diluted with water or addition of bromide gives far more transparent negatives. It is characteristic of glycin that it requires no addition of bromide in order to give negatives absolutely free from fog under conditions and with plates that with amidol, metol, and pyro invariably gave fog. It is in its action, I think, more like ferrous oxalate than any other developer, and should be useful for black and white work, and I have used it for this purpose with excellent results. I have not used it so much as metol and amidol, but am inclined to think it is less useful for landscape and portrait work than the others, though for plates over-exposed in the field I have obtained some capital results by using a very weak glycin developer, in the proportion of glycin, 1½ gr.; potash carbonate, 12 gr. to the ounce, and allowing plenty of time for development.

Of these three new developers, I think the one that will find most favour is metol, because it is more akin to the older developers, in that it is used in two solutions with an alkali. All of them are applicable to bromide paper and transparency work, but I must confess that so far my use of them for this purpose has been so small that I am loth to say anything about them.

Within the last two months, yet another developer, reducin, has been announced, which, like amidol, requires no alkali, and it is quite possible that we are by no means at the end of our list yet, and that, thanks to the energy and researches of our German friends, we may be blessed with still more tools to play with.

I have, of course, condensed my remarks, and I have not brought down any experimental plates, though I had intended to do so, but I thought it would hardly interest you to look through between 150 and 200 negatives. Nor have I in any case tried for what Messrs. Hurter and Driffield have defined as a perfect negative. I have tried these developers from the same standpoint as a man in practice would use them, but I hope I have said sufficient to prove that it is worth while giving the new comers a fair trial, even if it is not found that they will oust our dirty old friend pyro.

Since the above was written Messrs. A. and L. Lumière's paper, read before the Société Française on June 2nd, has been published, and I briefly summarise it. They suggest the use of the oxalate of diamidophenol as preferable to the chlorhydrate which is one of the commercial forms of amidol, and the oxalate is formed by them by double decomposition of potassium oxalate and chlorhydrate of diamidophenol. The one is, of course, well known to you all, and the latter is Amidol-Hauff; 20 parts of this dissolved in 200 parts of water and mixed with 19 parts of oxalate of potash dissolved in 200 parts of water gives a solution containing 21·5 parts of oxalate of diamidophenol. This salt is sparingly soluble in water 1 in 2,000, but far more soluble in sodium sulphite solution, and by means of this it is possible to get a concentrated solution. A 2 per cent. solution of sulphite will dissolve 1½ per cent. of oxalate of diamidophenol, a 5 per cent. sulphite solution dissolves 3 per cent., a 10 per cent. 5½ per cent., and a saturated solution 7 per cent.

Messrs. Lumière state that increase of the strength of the diamidophenol above 3 per cent. gives no increase of energy of the developer. A very few drops of 10 per cent. solution of ammonia accelerates very much without giving any fog, but that with larger quantities of ammonia a general black fog is produced. A few drops of 10 per cent. solution of acetic acid is the best restrainer, small traces of bromide having but little effect.

Finally they suggest the following formula for instantaneous work :—

Oxalate of diamidophenol	5 parts.
Anhydrous sodium sulphite	30 to 40 ,,
Distilled water	1,000 ,,

For time exposures reduce the quantity of sulphite to 10 to 20 parts.

The advantages of the oxalate salt are that both in the solid and liquid state it is more stable; considerably less sulphite is required, which, from an economical point of view, is not to be despised; and finally, it will not stain the skin.

I only received the number of the *Bulletin* containing this paper last Tuesday, and have not therefore had much opportunity of doing more than try the method suggested by Messrs. Lumière, but I have tried it both with Amidol-Hauff and Amidol-Andresen, and find it certainly workable, and I think it will prove to be in practice an advantage, and for those who would like to try it I suggest the following rough and ready formula :—

Dissolve 20 grains of amidol in ½ oz. of distilled water, add 80 minims of the normal 1 in 4 oxalate solution as used for ferrous oxalate developer, then add from 1 to 2 oz. of 1 : 3 solution of sodium sulphite, decant or filter from any precipitate, and the developer is made.

I had hoped to have been able also to make some mention of the method of developing plates with gelatino-silver emulsions, as suggested by Dr. Jenney, which has appeared in several photographic journals during this last month; but whilst I have only just had time to concoct the awful mixtures suggested, and try them for about a dozen plates, I am unable to say anything for or against, because of such few experiments; but it is certainly a promising field for experimentalists, and the process may prove yet another valuable assistant in practical work for obtaining pictures.

In the discussion which arose at the conclusion of this paper, Mr. L. E. Morgan said that his experience was that if with amidol the best results were wished for, the exposure should be, say, one half that which would be given if pyro was the developer.—Mr. Birt Acres believed that by humouring pyro quite as soft results could be obtained as with the new developers. For a very quick exposure on a waterfall he began with an eighth of a grain of pyro. The new developers were not yet well understood.—Mr. Leblanc's experience with the new developers led him to suggest more stopping down.—Mr. Cembrano was certain that with pyro and soda he could obtain as soft and as good results as with any of the new developers.—Dr. Mitchell, of Philadelphia, found that whilst with the new developers the image flashed up quickly, it was not so easy to get density as with pyro. The new developers had very strong reducing power, but at present it was like chaining lightning.—Mr. Mowl favoured eikonogen.—Mr. Sturmey, in developing about 200 of a rather slow make of film, had secured most satisfactory results by adding an equal quantity of amidol to a 10 per cent. solution of pyro. By that means he got good colour and full detail.—Mr. Henderson believed with regard to the new developers they were simply working in the dark. In his work he found good result from mixing hydroquinone and eikonogen.—Mr. Wall, in acknowledging a vote of thanks, said whilst in case of an under-exposed plate it required a good deal of experience and training to obtain a soft negative, anyone could get a soft result with the new developers.

* * *

Blackening Diaphragms.—The *Pacific Coast Photographer* publishes the following note from a correspondent :—"I have used a process for some years that seems to me to be cheap and simple. I buy an ounce of copper nitrate and dissolve it in three or four ounces of water. When I cannot get the copper nitrate readily, I dissolve copper in half an ounce of nitric acid until the acid is saturated with copper. Then I add a couple ounces of water and decant the liquid from the copper sediment. I heat the diaphragms in an alcohol flame and dip them into the copper solution. Then, while wet. I again heat in the alcohol flame until the metal gets a red colour which instantly changes to black on withdrawal from the flame. Sometimes it is necessary to repeat the dipping. Quite frequently the solution crystalises on the metal when first heated, but I heat that spot the same as the rest of the surface and clean with a damp cloth after the metal has cooled. There is another use to which I recently put this process. I carry several Yale keys almost alike. Since I blackened three I have very little trouble finding the key I want."

PATENT OFFICE

JAPANESE AND FOREIGN PHOTOGRAPHS.

THE Exhibition of Photographs sent by the Camera Club, and now on view in one of the Hakurankai buildings in Uyeno Park, has been enriched by the addition of a number of photographs from Japanese ateliers. This bald statement of fact suggests at once the attractive idea that here, for the first time, an opportunity is presented for conclusively comparing the photographic achievements of Japan and England. But a moment's consideration will show that the circumstances of such a comparison would be unfair to Japan. It is, indeed, somewhat extravagant to speak at all of a comparison on equal terms. Whatever knowledge Japan possesses of photography she has acquired within the past fifteen years, so that her acquaintance with the art, if measured by time alone, is scarcely a third of Great Britain's. Nevertheless, her success has been sufficiently marked, and has attracted sufficient attention to justify her treatment as a competitor. That much granted, however, there still remains the fact that she enters the lists at Uyeno without special preparation. The Camera Club had an interval of many months for getting together choice productions, whereas the Japanese photographers, in obedience to a sudden after-thought, were obliged to send in any pictures that they happened to have ready. These things must be taken into full consideration before having a final verdict on the comparative merits of the two schools. Nevertheless, when every reasonable allowance is made, it seems to us that Japan still occupies the second rank. Her coloured photographs, indeed, are admirable. Nothing approaching their level comes from the West. Probably this superiority is easily accounted for. In Japan the artist's reward is still so small that the best experts in water-colours are content to devote their time and talents to photograph tinting. Among recent experiences we recall the case of a painter holding a leading place among the members of the Meiji Fine Arts Society, and distinguished by some excellent work in oils, who gladly agreed to colour a series of Nikko photographs—many of them showing a wealth of elaborate decoration—for the wretched reward of five *sen*, or about three halfpence, per picture. Where such painters can be procured on such terms, it is plain that English competition labours under a great disadvantage. At all events, we have never seen any English coloured photographs that could hold their own against the pictures sent to this Uyeno display by Messrs. Tamamura and Tonokura, of Yokohama, for example. The former's exhibits are especially remarkable. Their photographic character is entirely effaced, and one's sense of colour and delicate execution is wholly captivated by their exquisite tones and wonderful clearness and softness. Some artificiality is unpleasantly perceptible in this artist's picture of ducks swimming, but his peony spray and his group of girls fishing are veritable gems. Many other lovely specimens of tinted photographs are shown, but we cannot speak of them in detail. In this branch of the art Japan easily takes first place. In the matter of colouring by mechanical processes, also, she makes an excellent showing, though it is plain that in this line her efforts have been more limited than those of her Western competitors. Mr. Ogawa's snow-scenes, however—chromo-collotypes—stand pre-eminent, and offer this feature of special interest that they invite comparison with the Camera Club's exhibits in precisely the same line. Yet another point is scored by the Japanese. Mr. Mizuno displays photographs in gold and silver on dark lacquered grounds, which are absolutely unique. The process is unknown outside the atelier where it is applied. It is a Japanese invention—the only invention that stands to Japan's credit in the field of photography. We do not insert that parenthesis in a critical spirit. The charge of want of originality sometimes preferred against Japan, because she has hitherto imitated the West without making any inventive additions to the borrowed civilisation, has always seemed to us distinctly unreasonable. Has the West made any inventive additions to Japanese decorative art—an art that has evoked European admiration and provoked European imitation quite as emphatically as Western sciences and industries have appealed to Japan? Familiarity must precede invention. The mechanical inventor in the West is the man who has lived for years in the company of machines, and has learned to feel their movements and gauge their capacities to a hair's breadth. We must wait many years still before we can reasonably estimate Japan's inventive genius. Meanwhile, this gold and silver process in photography belongs to her. As an artistic achievement it does not, we think, possess much value. The exhibit in gold—a photograph of Queen Victoria—cannot be called pleasing. But the exhibit in silver—a charming little landscape—ranks high in the decorative scale. This picture of Her Gracious Majesty suggests a criticism that should be brought strongly to Japan's notice. There appears to be a lamentable absence of taste and judgment in the bordering and framing of pictures. The Yokohama artists have devised a frame exquisite in itself, a frame of reddish brown lacquer showing a leaf scroll in its transparent depths. But they appear to consider such a frame suited to any and every photograph. Their mistake, however, is trifling compared with the extraordinary blunders committed by other photographers. It sounds a small matter, but though every foreign artist knows that the best picture ever painted may be ruined by clumsy mounting and framing, the Japanese do not seem to have yet discovered that elementary truth. Reverting, however, from special comments to the general question, the verdict will be, we think, that whereas the Camera Club's photographs are generally pictures, the Japanese photographs are almost always photographs. In other words, the former have succeeded in subserving technique to art, whereas the latter are still busy with the art of technique. There are, of course, exceptions. Mr. Arito's work—*vide* his Meguro landscape and his Water-mill—stands on the same plane as the work of the Western artists. So also do Count Toda's tiny landscapes, Mr. Matsuchiyen's seascapes, Mr. Nara's cat, and several of Mr. Kajima's exhibits. The last named is an amateur. One of the richest merchants in Tokyo, and representative of a very old family, he spends large sums annually on photography, out of pure love of the art, and gets results that justify him. A specimen of his application of photography to silk, a large picture of the celebrated Mito Yashiki Garden, is a beautiful production, soft, clear, and in every respect charming, though the difficulties of using such a material have evidently not been quite overcome. Even more lovely is a seascape shown by him, with the waves falling over a rock in the foreground and the immortal Fuji-yama in the distance. But these admirable efforts do not disturb the general conclusion that Japanese photography has not yet passed into the hands of artists. The technique is perfect, but the inspiration is still wanting. Nevertheless, we are persuaded that if the Japanese would make a serious effort, they might send to London a display of photographs calculated to greatly enhance their reputation and charm the British public. We sincerely hope that they will do so.—*Japan Mail.*

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

A New Matt Paper—Toning and Fixing Powder—The Eikonogen Developer—Printing with Collodio-Chloride Paper—Formulæ for Toning Celloidin Prints.

A New Matt Paper.

As the outcome of several years' experiments, a new gelatino-chloride printing-out paper with a matt surface is now introduced by the firm of Ed. Liesegang, of Düsseldorf. The exposure, and also the after treatment of the new paper, is similar to that of the well-known aristotype paper (with glossy surface) of the same firm, only it is necessary to use a more diluted toning and fixing bath than with the latter. Highly artistic effects and splendid tones may be obtained with the new matt paper, the image lying entirely on the surface. Consequently, the effect is most brilliant and vigorous, showing at the same time all the details of the negative. It is important, however, to observe that flat or thin negatives give with this paper far from satisfactory results.

Another novelty introduced by the Düsseldorf firm consists in a yellowish-white powder, which, if dissolved in fifteen times its bulk of water, yields a very good combined toning and fixing bath for aristotype prints, as well as for celloidin, albumen, and salted papers. The main feature of the bath is that it acts without giving rise to sulphuration.

The Eikonogen Developer.

To the many adherents of the eikonegon developer the following observations made by Prof. Alex. Lainer will be of interest. The author has found that the addition of a small quantity of iodine tincture (1 : 100), which, as it will be remembered, was recommended some time ago by Prof. Eder as an accelerator in the hydroquinone developer, acts advantageously on the gradation of tones, and gives soft negatives; one drop of iodine tincture to each 10 c.c. of the eikonogen developer being sufficient to obtain this result. Hyposulphite of soda, which, if added to the ferrous oxalate developer, acts as a very energetic accelerator, retards development if added to the eikonogen developer. By the addition of glycerine the keeping qualities of the developer are much improved, and at the same time this substance acts as a fog preventer, without affecting the details of the shadows. More than 1 part of glycerine to each 20 parts of the developer is prejudicial. Also sodium sulphite improves the keeping qualities of the eikonogen developer; by diminishing the bulk of the sulphite the contrasts are increased, whilst by omitting it entirely, very harsh and brownish negatives are obtained. The author also suggests a means to remove the yellow stain which sometimes results in developing with eikonogen; in this case it is only necessary to place the negative previous to fixing in very diluted hydrochloric acid (1 : 1000 water). Finally, it is pointed out that the most excellent results are obtained by a combination of the eikonogen with the hydroquinone developer, and the following formula is highly recommended by the author:—

Solution A.

Water	250 c.c.
Sodium sulphite	150 grammes.
Eikonogen	12.5 „
Hydroquinone	7.5 „

Solution B.

Water	250 c.c.
Carbonate of potash	75 grammes.

Before use, 1 part of B. is added to 5 parts of A. This developer is suitable both for portrait and for landscape negatives.

Printing with Collodio-Chloride Paper.

The editor of the *Phot. Nachrichten* points out that, in order to ensure durability in celloidin (collodio-chloride) prints, it is absolutely necessary to wash them well previous to toning, also if a combined toning and fixing bath is employed. Herr Bühler recommends the following toning bath for this kind of printing-out paper:—

Stock Solution No. 1.

Distilled water	500 c.c.
Acetate of soda	20 grammes

Stock Solution No. 2.

Distilled water	100 c.c.
Sulphocyanide of ammonium	2 grammes

Two hours before use, 10 c.c. of No. 2 are added to 50 c.c of No. 1. The mixture is well shaken up, and 3 c.c. of gold chloride solution (1 per cent.) are added to it in small portions, well shaking all the time. The toning process will require from eight to twelve minutes. The prints are then fixed for five to ten minutes in a solution of 15 grammes of hypo in 1,000 c.c. of water. If it be desired to strengthen the gold bath, 10 c.c. of No. 1 and 2 c.c. of No. 2 are added to it, and, after well shaking, 2 c.c. of gold chloride solution (1 : 100). The strengthened bath should be used only from two to three times.

Celloidin prints should always be washed, to begin with, in water of from 68° to 77° F. To wash them completely, from one to two hours are sufficient if running water is employed.

It may be mentioned that at present many operators prefer to use an addition of lead acetate to the toning and fixing baths destined for celloidin prints. The only advantage of this addition consists, however, in a slight acceleration of the toning process, the result remaining the same as without it. In the *Phot. Mittheilungen* the following compilation of reliable toning and fixing baths for collodio-chloride papers is given :—

	I.	II.	III.
Water	1000	1000	1000
Hyposulphite of soda	250	180	250
Sulphocyanide of ammonium	28	24	30
Acetate of lead	10	—	—
Nitrate of lead	10	10	12
Citric acid	8	—	—
Alum	8	20	—
Chloride of gold solution (1 per cent.)	40	100	100

In the same journal J. Gaedicke advocates the borax bath for the toning of collodio-chloride prints. They are at first freed from the excessive chloride by treating them with a solution of common salt in the same manner as albumen prints, when they are toned in the following bath :—

Borax solution (1 : 100)	1000 cc.
Gold chloride solution (1 : 200)	20– 30 cc.

The prints are then fixed in a solution of hypo (1 : 15) and at last thoroughly washed. By following these directions beautiful warm and neutral tones are obtained, which are similar to those obtained on albumen prints. The prints should not be allowed to acquire too blue a tone in the gold bath, for the colour will become more intense in drying.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

July 27th.—Mr. A. COWAN in the Chair.

MR. R. BECKETT showed a photograph having the effect of a print on toned paper. It was produced by copying an ordinary vignette with white margin.

Mr. J. S. TEAPE said that at the last meeting, when he showed platinum prints toned after treatment with mercury and hypo to remove silver if any had been present, it was objected that some mercury might have remained to form a basis for toning. He had therefore now used potassium bichromate and hydrochloric acid, instead of mercuric chloride, to chloridise any silver platinum. Proofs were shown, parts of which had been thus treated, and the whole then toned with uranium and ferricyanide as before. There was no difference between the portions subjected to the preliminary treatment and the rest of the print. All had yielded to the toning action, which had occupied about twenty-five minutes.

The CHAIRMAN remarked that it had been said that the platinum image could not be affected, but these experiments appeared to prove the contrary.

Mr. W. E. DEBENHAM showed two photographs of the back of an old violin There was a design inlaid in the wood, which was indistinguishable in the first photograph, but in the second was clearly shown. In this case a plate had been orthochromatised by immersion for two minutes in a solution of erythrosin, 1 in 10,000. He preferred to prepare the plate himself, as with the commercial plates he had not succeeded in getting clear images free from fog.

The CHAIRMAN inquired whether alkali had been used in the erythrosin bath.

Mr. DEBENHAM replied that it had not. It was stated that erythrosin without ammonia did not have any orthochromatic effect on gelatine plates. This statement he considered to be contrary to fact. The screen used had been a piece of ordinary orange-pot metal glass, and he was surprised to find the definition so little interfered with.

Mr. C. H. COOKE quite agreed with Mr. Debenham that plates prepared by one's self were much better than any that could be bought.

Mr. J. S. TEAPE said that his experience was the same as Mr. Debenham's with regard to the want of clearness in commercial colour-sensitive plates. He had some that had been purchased eighteen months since. They were now perfectly useless if developed with pyro and ammonia, but with amidol, they developed well.

Mr. OAKDEN said that it occurred to him that it was advantageous to dip plates one's self, and so avoid the pinholes which had troubled him when using purchased plates.

The CHAIRMAN looked upon the example shown as a remarkable illustration of the advantage of orthochromatic treatment. He remembered a somewhat similar illustration shown at the Photographic Club by the late Mr. Bedford. In this case it was the binding of an old book that had been photographed.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

ON Monday, 24th ult., Mr. G. C. GILL read a paper, entitled "Notes on Printing." He confined himself solely to the practical side, ignoring the historical and theoretical. He dealt with the ordinary silver albumenised print, which he said was being ousted by the gelatino-chloride, which gave finer and more permanent results, and was equally economical. He advised that Solio paper, notwithstanding the directions of the company, should not be printed in direct sun. He found the sun shining on to a blind was a capital light to print by, and where printing was done in the open, to be done in the shade in a north light. He showed a great number of specimens, principally of portraiture, on this paper, which gave splendid results. For portraits he recommended the mauve shade. Dealing with platinum, he demonstrated the development of the cold-bath process, the ease of working which was generally acknowledged. He gave hints as to vignetting, showing masks made of zinc, with serrated openings, which, he said, were more useful than those made from any other material, it being very pliable, and thus allowed the opening to be enlarged or otherwise with the greatest facility.

An interesting discussion followed.

Mr. H. Smith took first place for pictures at the London Colney outing.

HACKNEY PHOTOGRAPHIC SOCIETY.

Tuesday, July 25th.—Mr. W. HOUGHTON in the chair.

WORK was shown from Messrs. Beckett, Guest, Nunn, and Roofe.

Question.—Mr. Fort asked, "What is the best varnish for films?"

Reply.—Messrs. B. J. Edwards & Co. supply a good one; use cold.

Mr. Hensler asked, "For statuary should one aim at softness or contrast?"

Reply.—Softness; study the lighting. A dark background is generally used because it will permit of more contrast; the range of tone should show relief.

Mr. Selfe showed a print in which the sun was solarised, and a second reflection from one of the surfaces of the lens appeared over the foreground of the print which was weak enough to escape reversal.

Mr. Morgan then read a paper on Messrs. Hauff's Metol and Glycin. He said the class of work which suits amidol will also suit metol. The chief difference is that amidol requires no alkali, metol will tolerate almost any amount—preferably pot. carb. For bromide papers metol with three parts of their "A." developer to one of "B.," will give as good results as the best ferrous oxalate ones in half the time and with half the exposure. Experiments were made under same circumstances; thirty seconds was correct for the ferrous oxalate, whilst fifteen seconds was right for metol. Afterwards seven half-plate negatives were developed in the same two ounces of developer (metol), and no difference in density could be detected amongst them. Metol will keep indefinitely. But it is an important essential that *half* the customary exposures are to be given than those for pyro. A plate was developed with metol: in eight seconds the image flashed up strongly at once, but development was continued till dense enough without fear of fog. Over-exposure gives flatness. Negatives and prints were shown, one three seconds with pyro, against 1½ second with metol; the pyro one was hard and the metol one soft. The peculiar speciality for glycin is for black and white line subjects; it *must* be used in a very dilute form and its action is nearly automatic, as time will bring varied exposures to full density without it going beyond. For hand-camera work, either time or stop can be reduced to half. Generally develop a little deeper than that for pyro, as it prints quicker because there is no stain and it loses little in fixing. Warm tones can be got by development, but it takes too long. Either amidol, metol, or glycin developed plates can be toned, intensified, or reduced as others. Amidol will stand forcing better than metol.

A vote of thanks was unanimously accorded to Mr. Morgan for his demonstration.

Bath Photographic Society.

On Saturday, the 22nd ult., the members responded to an invitation of the Very Rev. Monsignor Williams to visit Prior Park, and photograph within its picturesque precincts. The day was remarkably suitable, and work was diligently pursued until the hour appointed for tea, when the host regaled his visitors with a sumptuous repast, served under the grand portico of the mansion. Long remembered will be the outing of Saturday as in every way enjoyable to the ardent photographer.

Ashton-under-Lyne Photographic Society.

Excursion to Liverpool, July 29th.

Considering a dark and drizzly morning, a goodly number attended, led by Mr. Charles Lord, who had secured a permit to photograph on the Docks, also a permit from the White Star Line to view and photograph the R.M.S. *Majestic*. The ship had just been beautified, and those who had cameras soon had them in position and secured rare and good pictures.

After this a number of plates were exposed on ships, &c., amongst them being a good picture of one of H.M. troopships. Over sixty plates were exposed.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

R. S.—We have carefully examined the photos sent. The fault is certainly due to bright objects in front of, or near the side of, the sitter. We are strongly of opinion that a retoucher should never meddle with the eyes, and we presume that you will agree with us, and that, in the cases before us, nothing in this way has been done.

Beginner.—You cannot go to a better instructor than the gentleman named, and the fee is an extremely moderate one considering all things.

T. M. C.—We cannot give reasons for rejecting MSS., but do not withhold our advice when it is sought.

John.—You will find that the paper will work well if you employ the following developer:—

A.	
Potash oxalate	4 ounces.
Ammonium bromide	80 grains.
Water (warm)	16 ounces.
B.	
Iron proto-sulphate	9 drachms.
Citric acid	1 drachm.
Water	1 pint.

Add one part of B to four of A.

Teignbridge.—The kodak is made, we believe, in half-plate size, to take both films and plates. Your fears about the other matter are not groundless.

S. S.—With such thin negatives it is difficult to get a transparency by contact which shall not be fogged. You will find the work far more under control in this respect if you use the camera, and we should advise the employment of chloride plates.

Dion.—The use of isochromatic plates or films is especially indicated in the case to which you refer. Both the Ilford Company and Edwards, of Hackney, make them, and your dealer will supply them.

Reducing.—The apparatus sketched is well adapted to the purpose, but you have been at unnecessary pains to shut out the light from the front of the negative. A couple of rods stretching from A to B and covered with a focussing cloth would serve every requirement.

A. Y. E.—The triplet lens is certainly out of date, but it will do your kind of work admirably, and we advise you to stick to it.

C.—The pictures are good, too good for the purpose to which you hope to apply them. The few would appreciate them, but the many prefer, unfortunately, something far more gaudy and vulgar. In a word, the enterprise would never pay.

Peter.—Most of the railway companies have a photographic department, where records are kept of the rolling-stock, bridges, &c. The secretary of the company referred to would give you the information sought. It is beyond our ken.

M.—The cost of reproducing the tables by zinco process would be rather more than having them set up anew by the compositor—that is to say, if you are particular about the quality of the work.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1823. AUGUST 11, 1893.

NOTES.

HERE is a question for shooters with the ubiquitous hand camera. Is it possible to hold a camera sufficiently steady to obtain a sharp picture, in close proximity to a piece of ordnance while it is being fired?

So far as our experience goes, this question cannot be answered in the affirmative. We lately tried, with a hand camera, to secure a picture of a forty-pounder Armstrong gun, and by permission of the officer in charge we were able to take up a commanding position within fifty feet of the weapon. We made three exposures. Number one, when the lanyard was pulled for the first time, when, to our disappointment, no explosion followed save a crack followed by a puff of smoke from the touch-hole. This, as was afterwards explained to us, was merely to see that the vent was clear. This picture, when developed, was all that could be desired as a photograph, the details being quite sharply defined, including the little puff of vapour just alluded to. The remaining exposures were hopelessly blurred owing to movement of the camera at the moment the pictures were taken.

So the question arises, had we undertaken to do an impossible thing with the hand camera? We felt that we moved on each occasion, and that this was not due to any hurry or nervous agitation. We ascribe it, perhaps wrongly, to the mechanical effect of the sound-wave from the gun, and we feel that if, under the same circumstances, we were to attempt once more to make any number of exposures, the same result would happen. We should be glad to know if any of our readers have had a similar experience, for the point is an extremely interesting one.

MANY of us perhaps do not realise that the impulse of the air, which is called a sound-wave, is able to do actual work. That a water-wave can knock a strongly built structure into a cocked hat we have, unfortunately, constant and convincing evidence. But the power of the air, or sound-wave, is not so apparent.

LET anyone mount the spiral staircase of a belfry when a peal is being rung, and he will distinctly feel that his progress, as he approaches the bells, is strongly opposed by a real, but invisible, obstruction. A more familiar example of sound churned into energy is found in both the telephone and phonograph. Edison, who has had so much to do with the development of both these appliances, invented some years ago a small motor, which would rapidly revolve by the aid of sound alone. It is not, therefore, surprising that the powerful wave from a shotted forty-pounder should give a camera-bearer sufficient push to disturb his operations.

BY the way, speaking of hand cameras, plate-makers would do well to follow the example of a few of their body in taking care that quarter-plates are not coated on glass too thick to go comfortably into sheaths. We lately were obliged to reject some plates owing to this fault.

THE sixth annual exhibition of the Photographic Society of India is advertised to take place at Calcutta in December. Those who wish to become exhibitors may obtain particulars from the Hon. Sec. of the Society, whose address is 57, Park Street, Calcutta.

THE Indian Society have announced a novel form of competition for their members. A silver medal is offered by "Brown Stick" for the best prints from two negatives which will be sent round from member to member. Any number of prints may be sent in, but each must be by a different process—*i.e.*, printed on a different brand of paper, or with some variation in the printing, developing, or toning.

WE are glad to see this new departure, for it is a welcome variation, as the best landscape, the best figure study, the best river scene, and so on. The only difficulty that might arise is the very possible breakage of the negatives in their transit through India and Burmah, but this might be obviated by the use of celluloid.

THE idea is a good one, and many changes might be rung upon it. For instance, a sharp negative might be sent round from which the best "impressionist" print should be awarded the prize. Or a hopelessly bad negative might be submitted to competitors and the prize given to him who should best dodge it so that a decent print should result. A cloudless picture might be provided with the most suitable sky, and so on *ad infinitum*. Competitions of this kind could not fail to do good, in causing competitors to break ground new to them, and so causing their wits to work in unaccustomed fields.

OBSERVATIONS with regard to the keeping quality of dry plates are always useful, and we therefore notice with interest a letter shown us lately by Messrs. Mawson & Swan, stating that the writer had just been using successfully some plates which were ten years old. During part of this time the plates had been stored in a cellar which was not remarkable for its dryness.

OTHER cases are on record in which gelatine plates have been used after even a longer rest than ten years. But it would be foolish to run away with the idea that, like wine, gelatine plates are any the better for keeping. We have always held, and still hold the opinion, that a gelatine plate is at its best during the first few months of its life. There is a distinct advantage in keeping a plate a few weeks after coating, if the gelatine shows any sign of frilling, as it sometimes will; but, barring this now uncommon fault, we prefer a plate, like an egg, newly laid.

THE prosecution of a woman for practising the "science" of palmistry has led to some newspaper correspondence which is interesting. It is quite clear that a number of people still believe in the possibility of reading the future by the lines of the hand, and one gentleman says that he forwarded a wax impression of his hand to one of these palmistry professors, and received in return a most truthful description of his character. Unfortunately every man is prone to believe in a flattering description of himself, and this may be the case in the instance quoted. The real way to test the powers of one of these professors would be to require him to work from photographs. We venture to say that under such conditions his hanky-panky would fail to produce the expected results.

THE story of the famous "Gainsborough" which was cut from its frame at Messrs. Agnew's some years back is almost forgotten, but it has lately been revived by the *Pall Mall Gazette*, whose representative interviewed one of the firm, and obtained some interesting particulars about the lost picture. "'We could have had the picture back several times since the theft,' said Mr. Agnew, 'if we had liked to pay £200 or £300.' I thought you offered a reward of £1,000? 'Yes, but for the thief, not for the picture, and the negotiations for the return of the picture never included the delivery of the thief into custody. We could not think, of course, of continuing negotiations of that sort. In one case, in order that the genuineness of the picture might be established by those who were thus negotiating with us, we had a piece of the canvas cut from the picture sent to us. We should find, the writer said, that this piece of canvas would fit in the stretcher at a certain point, and when we came to apply it to the stretcher it did so fit. There is no doubt whatever that it was a piece of the stolen picture.'"

MISS CATHERINE WEED BARNES was married to Mr. H. Snowden Ward on the 15th ult., at Albany, N.Y., from the residence of the bride's father. We learn from *Anthony's Bulletin* that the happy pair are spending their honeymoon at St. Louis and other Western cities, and that early in August they will attend the Photographic Congress at Chicago, when Mr. Ward will read a paper on "Photographic Efforts at Union." The *Bulletin* suggests that there may be a hidden joke in the title of the paper.

A WRITER in *Wilson's Photographic Magazine* suggests a use for spoiled celluloid films. He remarks, that "in making an enlarged copy of an old photo, there is generally a certain proportion of grain, due to the abraded surface of the original. In the ordinary way of business this means a considerable amount of fine retouching to secure anything like a presentable result. With the aid of a clean film of celluloid, one-half this work may be dispensed with. The enlarged negative need only be roughly retouched (sufficiently to even up the most obtrusive grain), and put into print in the usual manner, but with a sheet of celluloid between negative and paper. The effect is surprising in its softness, and yet delicacy is not lost in the finest details."

ANASTIGMATIC APLANATISM AND THE ZEISS ANASTIGMATIC LENSES.*

BY DR. PAUL RUDOLPH (JENA).

(*Concluded from page 486.*)

THE Zeiss anastigmats yield, therefore, a uniform depth of focus from centre to margin without necessitating the same amount of stopping down that is imperative with the "aplanats." *The anastigmats have in proportion to their covering power a considerable relative rapidity.*

A paper read by the author in the Free Photographic Association at Berlin was accompanied by two instantaneous photographs reproduced by the lithographic process, which served for comparing the "anastigmat" with a normally corrected "aplanat." The two lenses used in the tests had the same maximum aperture, and were stopped down to 1-9. The anastigmat 1-6·3, *f*=21 cm., gave a circle of 25½ cm. diameter of fair definition (62½°), while with the aplanat 1-6 of 20 cm. focus stopped down to 4-9 the same circle of 11 cm. at most (31°). The aplanat, which was the make of a renowned firm, was in itself a good specimen, the definition being excellent in the centre.

In order to obtain with the aplanat a sharp image of the same extension it would have been necessary to stop the lens down to about *f*-36, and thus to seriously diminish its rapidity.

Professor Roster, of Florence, who, in his own interest, subjected the anastigmats to exhaustive practical tests, found that the anastigmats, with a given angle, admit of five to eight times more rapid exposures than aplanats and antiplanats of best make.

Dr. Chiusoli, of Ravenna, speaks equally favourably of the anastigmats, and Professor Fabre, of Toulouse, writes in his *Aide-mémoire* of 1891, "The anastigmat is eleven times more rapid than the comparable objectives of older type."

The author himself compared an anastigmat 1-6·3 *f*=170 mm., with an excellent specimen of the *aplanat* 1-9, *f*=145 mm., and found that the *anastigmat* covered the test screen of Zeiss with almost the same degree of definition that could be obtained with the *aplanat* working at *f*-32—*i.e.*, the anastigmat working at 1-6·3 with a *twelve times greater rapidity* than the aplanat 1-9 was found to do the same as the latter. Owing to the better concentration of light in the anastigmatic flat image, as compared with the anastigmatic curved or astigmatic flat image, with an objective of the former type, the intensity necessarily diminishes less from centre to edge than a lens belonging to either of the last-named types. This advantage in the Zeiss anastigmats cannot be overrated, as the oblique incidence of rays at the edge of the image is, in itself, productive of a continuous diminution of intensity towards the edge. The anastigmats yield a negative which is *uniformly exposed* from centre to margin. The advantages resulting from the anastigmatic flatness of field greatly extend the range of applicability of these lenses.

The advantage of being permitted to use a large stop when a certain size of plate is prescribed, and the advantage of the uniformly bright field, assists in the solution of the problem of using short focus lenses for relatively large plates :—*i.e.*, with a given rapidity of the objective, essentially shorter foci may be used in the case of anastigmatic lenses than is admissible with other types, *e.g.*, anastigmat 1-6·3 (Series II.), of a focus of 105 to 120 mm., is *quite* sufficient for sharply covering a plate 9 × 12 cm. (3½ × 5 inches) at *f*-9 ; with the older types, the focus would have to be 120 mm. (7½ inches) at least. In order to cover 13 × 18 cm. (5 × 7 inches) at *f*-9, it was necessary to employ a lens of, say, 350 mm. (14 inches) focus, whereas, with the anastigmats this result may be obtained with a focus of 210 mm. (8½ inches), and even with 170 mm. (7 inches). Short foci give, however, at equal distances of the object, a better depth than long foci ; they yield a sharper image of objects situated at *different* distances from the position of the apparatus. The anastigmatic lenses have, therefore, in another sense, greater depth of focus than the older lenses.

These advantages become particularly apparent in instantaneous and wide-angle lenses, and in the photography of architecture and interiors, and in copying. Detective cameras may be made of smaller dimensions, as they may be fitted with short-focus lenses. Photographs of architecture and interiors, and reproductions of maps and paintings, may be taken by means of rapid lenses—*i.e.*, at short exposures.

The tables published by the author in *Eder's Jahrbuch*, of 1893, in his paper on "The Astigmatism of Photographic Lenses," which are based upon calculation, show the extent to which anastigmatic flatness has been obtained with the *various* series of the anastigmats.

TABLE I.

Mean Deviations of Image Curvature for Objectives at 100 mm. Focus.

Objectives.	Deviations for Inclinations of a Principal Ray of—						
	10°.	15°.	20°.	25°.	30°.	35°.	40°.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Anastigm 1-18 (Long foci) ...	−0·2	−0·4	−0·5	−0·2	+0·3	—	—
Anastigm 1-9 ...	−0·5	−0·9	−1·2	−1·0	−0·6	+0·4	+2·4
Anastigm 1-6·3 ...	−0·3	−0·5	−0·6	−0·3	+0·8	+2·4	—
Anastigm 1-12·5 ...	0·6	−1·1	−1·4	−1·4	−1·0	+0·2	—
Anastigm 1-4·5 ...	−0·5	−1·0	−1·1	−1·5	−0·6	+1·3	—
Anastigm 1-7·2 ...	−0·7	−1·2	−1·3	−1·2	−0·2	+3·0	—
Anastigm 1-18 (Short foci) ...	−0·9	−1·4	−1·9	−2·2	−2·2	−1·4	+0·4
Aplanat 1-7	−0·2	−0·6	−0·9	−0·8	+0·2	+3·0	—

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* By "aplanat" we understand the well-known type of symmetrical doublets of four lenses introduced by Steinheil. Previous to the invention of the anastigmats, it was the best type, and appeared in the market under many names, such as aplanat, euryscope, rectilinear, symmetrical, lynceinoscope, paraplanat, &c.

Table II.

Astigmatic Differences for Objectives at 100 mm. Focus.

Objectives.	Deviations for Inclinations of a Principal Ray of— 10°.	15°.	20°.	25°.	30°.	35°.	40°.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Anastigm 1-18 ...	−0·1	−0·1	−0·2	+0·1	+ 0·6	+ 1·0	+8·0
Anastigm 1-9 ...	0·	+0·05	+0·5	+0·3	+ 0·6	− 0·5	−4·0
Anastigm 1-12·5 ..	+0·1	+0·2	+0·4	+1·3	+ 2·2	+ 3·0	—
Anastigm 1-6·3 ...	+0·1	+0·4	+1·2	+2·2	+ 3·6	+ 4·2	—
Anastigm 1-4·5 ...	+0·2	+0·6	+1·5	+3·0	+ 5·3	+ 9·0	—
Anastigm 1-7·2 ...	+0·2	+0·5	+1·4	+2·8	+ 5·5	+11·0	—
Aplanat 1-7	+0·8	+2·0	+4·0	+7·0	+12·2	+19·4	—

Table I. shows the deviations of the mean curvature of the various anastigmats for every interval of 5°. The table gives also the corresponding value for an aplanat of relative aperture 1-7, as it may be interesting to directly compare the correction of this hitherto best type of lenses with the Zeiss anastigmats.

Table II. gives the astigmatic deviations. The figures are reduced to a focus of 100 mm.

These two tables suffice to give an adequate idea of the correction of the anastigmats. Studying them more closely, we find that the long-focus lenses at the series 1-18, the typical copying lenses, are at the head of the table. In computing these lenses, the greatest possible pains were taken to render anastigmatic flatness as perfectly as possible without in the least neglecting accurate spherical correction.

The greatest deviation of the mere curvature in an objective of 100 mm. focus of this type, with an inclination of a principal ray of 30°—*i.e.*, with a field of 60°—is 0·5 mm., and the astigmatism 0·6 mm., amounts which may be practically neglected.

Next to this type comes the anastigmat 1-9, which, up to 70° of field (35° inclination of a principal ray), has a maximum deviation of curvature of 1·2 mm., and a maximum astigmatic difference of 0·5 mm.

After these come the shorter focus lenses of anastigmat 1-18, anastigmats 1-6·3, 1-12·5, 1-4·5, and 1-72.

The aplanat 1-7 has up to 30° a deviation of curvature of about 1 mm., while with the more rapid anastigmat, 1-6·3, it is only 0·6 mm. The former has 12·2 mm. astigmatic difference, the latter only 3·6 mm.—*i.e.*, less than one-third of that amount. The difference is still greater with wider angles.

In conclusion, the other advantages which the Zeiss anastigmats combine with anastigmatic flatness may be shortly enumerated. They are the following :—

1. The reflection images have a most favourable position.

2. They admit of the most colourless glasses being used ; and

3. The two parts of the doublet are in close proximity.

The images formed by reflection at the boundary surfaces between glass and air are all at a considerable distance from the plane of the image. By this means the appearance of fogged images, which generally increases with the number of isolated lenses, is reduced to a minimum, and thereby the image rendered exceedingly brilliant.

The existence of this property is amply proved by photographs taken with the anastigmatic lenses.

None of the anastigmatic lenses can be shown to have a *flare spot*, even when dazzling light enters the objective.

The use of colourless glasses is an advantage which cannot be overrated. Apart from sensitive plates, this is the only means of satisfying the universal postulate, *depth of definition with short exposures.*

With objectives of the same type, a certain desired amount of depth can, with a given focal length, only be obtained by corresponding stopping down of the lens. The further, however, this stopping down is carried, the less becomes the light which can pass through the lens. If, in addition to this, the scanty light thus admitted is further impaired by detrimental colouring in the glasses, as was the case with the glasses formerly used in the construction of aplanats, it becomes naturally impossible to work at short exposures.

The anastigmats, when applied to outdoor photography at *f*-18, give fully exposed negatives, the usual commercial instantaneous dry plates being used. Before the application of the Schott baryta glasses to the construction of photographic lenses, this belonged to the province of impossibilities. Even with stops *f*-25 and *f*-36 instantaneous photographs are still obtainable.

The *short structure* of the anastigmats favours the *diminution of the rapidity with which the intensity decreases from centre to edge.* It diminishes that part of the decrease of the intensity which is caused by partial stopping of these oblique pencils by the edges of the lenses.

Fig. 10.

Let L_1 and L_2 (Fig. 10) be the lenses forming a doublet of a diameter 2 D, let B be the plane of the diaphragm, and let the diaphragm be situated midway between L_1 and L_2. Let a be the distance of the diaphragm from the apex of the anterior surface, and let 2 d be the diameter of the aperture of the diaphragm.

If for the sake of simplification the collective effect of the parts of the doublet be neglected—*i.e.*, if it be assumed that the diameter of the pencil passing through the diaphragm 2 d is also 2 d previous to the passage through the lens, and also if we disregard the curvature of the external surfaces and the thicknesses of the lenses, then the oblique pencil passing through 2 d is stopped in that particular moment when the principal ray, H, is of that degree of obliquity which is represented by a straight line contained in a plane passing through the axis of the objective, and connecting the edge of the lens with the diaphragm edge on the same side of the axis. Let the angle between this principal ray, H, and the axis be a, then it will easily be seen that $t\,g\,a = \frac{D-d}{a}$. This limit is increased in a measure as the difference D—d increases, *i.e.*, in a measure as the aperture of the diaphragm d becomes less.

When D−d is constant, then a increases in a measure as a decreases.

From this we infer: *The shorter the distance of the diaphragm from the extreme apices of the lenses, the later is* *the moment of the stoppage of oblique pencils by the edge of the lenses.*

The following table contains a few results derived by actual measurement of some of the best known lenses :—

When $D - d = \frac{1}{2} D$.
Or $d = \frac{1}{2} D$.

the double limiting scale—*i.e.*, the field illuminated without stop—has the following values in the cases of the lenses so measured :—

Let $d = \frac{1}{2} D$.

Objective.	Greatest relative aperture of the objective.	Field without stoppage of pencils by edge of lens.
Busch Aplanat (No. 4)	1-8·5	31° 2′
Goerz Rectiplanat (Rap. Lync.) ...	1-6·5	33° 22′
Zeiss Anastigmat 1-4·5	1-4·5	36° 40′
Euryscope IV. von Voightlander ...	1-6	38° 18′
Group Antiplanat, von Steinheil ...	1·7 bis 1-6·5	40° 6′
Zeiss Anastigmat 1-6·3	1-6·3	41° —
Goerz Landschafts Aplanat	1-8·5 bis 1-9	44° 14′
Zeiss Anastigmat 1-7·2	1-7·2	45° 15′
Zeiss Anastigmat 1-9...	1-9	50° 6′
Zeiss Anastigmat 1-12·5	1-12·5	58° —
Zeiss Anastigmat 1-18	1-18	58° —

According to this table, Busch's aplanat is last in the order of excellence. It has, with relative aperture of 1-8·5, an unstopped field of 31° 2′ only, the anastigmat 1-4·5, which is four times as rapid, having an angle of 36° 40′, or 5° 38′ more, while anastigmat 1-9, which is about equally rapid, has 50° 6′—*i.e.*, 19° 4′ more. Better results are obtainable with the rectiplanat of 1-6·5 aperture ; still it falls short of the doubly rapid anastigmat 1-4·5. None of the above-named aplanats, and even the group antiplanat, which is noted for its shortness, possess the same angles as anastigmats of corresponding apertures.

It must again be stated that the figures here shown are not quite correct, inasmuch as the refractive power and the thickness of the combined lens, and the curvature of the external surfaces of the lenses, have not been considered. This does, however, not materially affect the *relative* position of the lenses as compared with each other.

The short structure of lenses has also the advantage of permitting of instantaneous shutters being adopted before or behind the objective, without the risk of thereby causing detrimental stopping of the incident rays when no shutter is being used. The localisation of the shutter between the lenses of the anastigmat is not, therefore, of the same importance as with long-bodied aplanats.

* * *

THE current number of *Knowledge* contains a most interesting article by Mr. A. C. Ranyard, entitled "The Great Lunar Crater Tycho." It is magnificently illustrated by collotype reproductions of photographs by the brothers Henry, taken at the Paris Observatory at different dates.

THE WIDE ANGLE CLUB.—VII.

THE last meeting of this energetic Club was quite a record one in the direction of attendance, the capacity of the usual meeting-room being very much taxed. This was due to two causes—the resignation of the Hon. Sec., and the reading of a paper upon "The Persuasion of the Hand Camera," by Mr. Fordwell.

The President missed the table the first time, but the hammer came down kerplunk at the second attempt. "Gentlemen of the Wide Angle Club, Esteemed Bumbletonians, and Eminent Camerists,—I regret exceedingly that it is my—ah—duty to inform you that the Hon. Sec. of this Club, to whom we are all so much endeared—(Hear, hear)—of whom Bumbletown is proud to the extent of defiance—(applause)—and who is one of the shining lights of the photographic firmament—(cheers)—has—ah—has sent in his resignation. Much as I dislike the—ah—task, I must ask you to-night to use your selective organs to appoint a successor."

Mr. Raven : "What are his reasons, sir ?"

The President : "I have fully gone into the matter, and feel convinced that it is a definite resignation. I think that ought to suffice."

Mr. Quibble : "I move that, before the matter be entertained or considered, the President do forthwith detail the circumstances."

The President : "Have I not said that I have gone into the matter ?"

Mr. Quibble : "That's not good enough for us ; a thing of that sort should come before the meeting generally."

As several members said the same thing, the President calmed down his rising anger, and consented to explain. It appears that the President objected very strongly to the resolution passed at the smoking concert, and told the Hon. Sec. not to inscribe it upon the minutes at all. At the next Council meeting the omission was noticed and commented upon. The Hon. Sec. refused point blank to insert "any such disreputable jargon in his nice clean book." It was, however, duly carried that "it was no part of an hon. sec.'s duty to dictate what shall be inscribed in the minute-book" ; and he was asked to insert it before the next meeting. "Now," concluded the President, "had I been present at that meeting things would have been very different."

A rather acrimonious sharp-shooters' fight then took place between the President, the members, and the Council. Eventually it was resolved to accept the resignation, and to appoint a successor. One gentleman proposed was objected to by the President, because he was one of the obstructive councillors, and "he should not let his name go before the meeting." More three-cornered fighting took place, but at last Mr. Arch was declared duly elected.

The next business was the paper by Mr. Fordwell. In introducing it to the meeting the President said : "It will be a wonderful paper, one that will make all the other societies jealous, one that will set the—ah—flames of the photo press agog. Mr. Fordwell is the greatest living exponent of the hand camera, and never will be equalled.

He knows everything about every camera that ever was or ever will be invented. His own work is so far and away ahead of all the rest, that it is quite surprising, nay, astounding, that he has not participated in the Wedding Day Honours. Gentlemen, attention for—ah—for a treat."

Mr. Fordwell admitted at the outset that all the chairman claimed was true, and he was not ashamed to admit it. But he claimed for the hand camera that nothing at present was equal to it, and in a few years all other sorts would disappear from the face of the earth. They might not believe it, but *he* did, and that was sufficient. He claimed that the hand camera had brought down the prices of plates, made the manufacturers put more silver in the emulsions, caused them to be wrapped up in fours instead of sixes, and in many ways altered the whole system of plate-making. It had so reduced the weight and dimensions of ordinary cameras that a quarter-plate was now big enough for a half-plate picture. The present dearth of prints above 4¼ by 3¼ was also another persuasion of the hand camera ; and it was only the other day that the last "art" writer was killed off, "unhonoured and unhung." But there were also the mental persuasions. The hand camera had increased the marriage rate prodigiously, because every fair maiden fell in love with the hand-camera worker. At least he had found it so. Bread, too, had gone down a halfpenny per loaf white, and three farthings brown. The Home Rule Bill would never have been carried but for the hand camera, and its marvellous reproductions in the press of the enthusiasm in Ulster over its passage. In the placing of figures, too, it had had enormous persuasion. Chairs with four legs were so arranged now as to show them all, and in a love scene, such as the "Old, Old Story," the man was now represented with both arms round the tiny waist, instead of only one as heretofore. The crinoline, too, would have been *un fait accompli* but for the wholesale dread the fair sex had of the way the hand camera would reproduce the balloonous drapery.

There was quite another persuasive direction as well, that of improving speed of action and vision. As regards speed, he used never to be up till ten in the morning, and the breakfast got cold. Since he had taken to the hand camera he was always out of bed at 9.50 sharp. As for speed of vision, he could see things much better than heretofore, and, as an example, mentioned that his wife lately offered to meet him at the office and walk home with him. But he saw her little game at once ; it would mean stopping at the shops *en route* for a new bonnet. This sagacity was entirely due to the hand camera. In days gone by he never could see how he could be leg-before-wicket, but when bowling the other day he clearly saw another man out in that way. He had found the hand camera also very educational, too, in quite a new direction—viz., poetry. It so inspired the worker that he was compelled to break forth into little riplets of overflowing beauty and power. He had himself broken out into charming melody and harmonious expression in a comic song. The hand camera was also a powerful weapon in the hands of the fair sex ; it was now "Be took, or be taken" ; and many a sweet young innocent had gone to the hymeneal altar rather than consent to be handled by the hand camera.

In conclusion he claimed that the hand camera was the greatest power of the present day ; no monarch, no king, no authority, sceptre in hand, could stay the onward progress of the noble army of hand-camera men.

The discussion which followed was lively, but did not elicit much that was of general interest.

The Exhibition Committee (Mr. Honmention) reported that the Committee had duly considered the prospectus of the Photographic Salon, and it had its approval.

Mr. Fordwell remarked that he understood that nothing but hand-camera work would be admitted to the walls of this great exhibition, which, he said, was another persuasion of the great hand camera.

The President hoped that Mr. Fordwell's paper would be inserted in full in the *Times* and all the big papers, as it was well worth it.

THE PHOTOGRAPHIC SURVEY OF WARWICKSHIRE.

LAST week there was opened to the public at the Birmingham Museum and Art Gallery an exceedingly valuable and interesting collection of photographs of Warwickshire landmarks and scenery. The exhibition is the result of the second year's work of the members undertaking the photographic survey now being symtematically carried on under the auspices of the Birmingham photographic Society—a labour of love which has already borne excellent fruit in the shape of architectural and historical record of the county which in future years promises to become almost priceless. Last year, it may be remembered, something like 700 pictures of old and famous buildings—some of them since swept away by the ruthless hand of the present day "restorer" and speculative builder—were hung in the Art Gallery ; and at the close of the exhibition, by a happy idea, they were presented to the Corporation for preservation on behalf of the public. The Free Libraries Committee, appreciating the value of the gift, had the entire series handsomely bound in folio volumes, and they are preserved in the Reference Library, together with the copious "notes," which were prepared at considerable cost and labour, explanatory of the most notable features. The present exhibition consists of nearly 500 photographs, and, at its close, these also will be presented to the corporation. It is a matter for regret, however, that the funds of the society will not permit of the publication of the elaborate notes which have been made in the catalogue which has been prepared for the guidance of the public. Last year this was done, but the preparation of such an exhaustive guide resulted in a serious pecuniary loss, which precludes a similar experiment this year. It is to be hoped, however, that these notes will be preserved along with the pictures when they find a resting-place in the public library. The survey, it may be explained, is being carried on voluntarily by the members of the Birmingham Photographic Society,

Society, who at their own expense defray all the costs involved in the taking and preparation of the views; the cost of mounting, preparation of catalogue, &c., which is very considerable, is defrayed by the Warwickshire Survey Council (who also provide the oak frames in which the photographs are exhibited) by the help of donations and subscriptions. The pictures, it may be parenthetically observed, are not shown as specimens of what degrees of beauty and perfection may be attained in photography. Their chief value arises from the fact that they are faithful records of Warwickshire churches, manor houses, castles, villages, streets, and other famous landmarks, all subject alike to the ravages of time and the many changes which characterise the march of civilisation. What is new to-day will be old to-morrow—figuratively at least—and so the work of the Warwickshire Survey seems likely to go on for ever, for views of the Council House, Law Courts, and other modern buildings in all their present-day glory will become as rare and valuable to our descendants as are those of Ann Street (now Colmore Row), the old Inland Revenue and post offices, the Old Ship Inn, Middleton Hall, Kenilworth, and Warwick to us. But it is not to be supposed from this that the work has not been skilfully and artistically done; indeed, there are many specimens hung which have won prizes and secured high commendation as real works of art at the Society's exhibition. The members of the Survey have endeavoured to follow a definite route as closely as possible, and some of the subjects have been worked out on a most complete and indeed elaborate scale—as, for instance, the views of Middleton Hall, Sutton Coldfield, Peddimore Hall, Berkswell, the George Eliot country, &c. The chief feature in the present exhibition is undoubtedly the fine collection contributed by Sir Benjamin Stone, to whose enthusiasm and liberality the success of the Survey is in great measure due.

The views are twenty in number, and they measure 20 in. by 17 in. each, and have been prepared from negatives taken twenty-five years ago—a fact which in itself increases their historical interest. They form, we understand, only a very small portion of an important collection made by Sir Benjamin, which it is to be hoped will in due course be published in its entirety. Chief amongst them may be mentioned a very fine photograph of the porch of Castle Bromwich Hall; the Old Ship Inn, which Prince Rupert made his headquarters in 1643; the stocks and pillory which formerly stood in the market place of Coleshill; a beautiful picture of Shakespeare's monument; the long corridor at Aston Hall; the gateway of Maxstoke Castle; the chancel of Aston Church before its restoration; and views of the Red Lion, Digbeth, and the Old Crown House, Deritend, when they were in a better state of preservation than now. But perhaps the gem of the lot is No. 367, Berry Old Hall, a magnificently finished view, and one of the finest specimens of the picturesque half-timbered houses to be found in the county. The Middleton Hall series, too, cannot fail to command admiration and interest. This old moated manor house is situated about five miles from Sutton, and belongs to Lord Middleton, though at present it is in the occupation of Mr. Egbert De Hamel. The hall was built under a charter granted by Richard II., which document is still in the possession of Lady Middleton. Needless to say, there are many quaint old nooks about such a building as this, and they are all faithfully depicted. Only a very short time ago a priest's secret hiding chamber was discovered in the roof, and by the aid of the magnesium light a splendid picture of this is shown, as also the dungeon beneath the moat, the old chapel, &c. No. 95 shows a chamber with a secret cupboard over the fireplace and a "perfume distillery"—for the ladies in those days were in the habit of distilling their own perfumes. Another room has a fireplace in it with the date 1604—the 4 curiously enough being reversed. The views of Peddimore Hall, near Erdington, and Manor-house, dating back 300 or 400 years, are also full of interest, particularly the view of a room showing a stone fire-place worn away to an extraordinary extent by the practice followed by the huntsmen of those early days of sharpening their knives on the most easily accessible stone. A pretty view of Hemlingford should not be overlooked, marking as it does the spot which gave its name to the Hundred of Hemlingford, and showing Kingsbury Castle, one of the homes of the old Mercian kings. The "George Eliot" series embrace a view of "The Elms," near the church at Nuneaton, where the famous authoress went to school; Milby Church and the monuments in Astley Church immortalised in "Scenes of Clerical Life"; "South Farm, Arbury"; George Eliot's birthplace and Mrs. Poyser's farm in "Adam Bede"; Griff House and Emma Gwyther's tomb, and the gateway through which she used to pass, as depicted with so much power and pathos in "Janet's Repentance." No. 126 shows Kingsbury Church, with a Norman column on which two compartments of the abacus have been left unfinished by the old-time sculptor; whilst 128, a view of a monument in Shustoke Church, which crumbled to dust after the fire in 1881, cannot fail to be of interest. There is a lovely view of the stone screen in Bickenhill Church—a curiosity absolutely unique in Warwickshire—and the views of Berkswell, Coventry, Warwick—including the armoury before it was burned down—Henley-in-Arden, &c., are sure to find admirers among lovers of the picturesque. The views of Kenilworth are by no means complete, but that portion of the Survey will be undertaken next year. No. 255 is a beautifully finished view of the old Roman Tripontium near Rugby, with the graves at the top of the ridge clearly visible; and No. 248 is a charming picture of Dow Bridge, where the Avon enters Warwickshire, and over which Old Watling Street runs. Parenthetically it may be remarked that two or three of the members have undertaken the survey of the Avon from here to the point where it leaves the county at Welford, the series to enhance all the objects of interest on either side of the river. There are also two beautifully finished views of the tomb of Sir Fulke Greville in Alcester Church, whilst a picture which is sure to become popular is 306, a type of Warwickshire rustic beauty. This, we believe, is a photo of the little lady, Kitty Partington, mentioned, when four years of age, in an article on "Shakespeare's Country," written for the *English Illustrated Magazine* in 1884 by Miss Rose Kingsley, daughter of the novelist. Amongst the other pictures which may be mentioned are those of the Four-shires Stone at Moreton-in-Marsh, the Roll Right Stones, &c.; but it is safe to say that there is not an uninteresting view in the whole collection. The exhibition will remain open for two or three months.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, AUGUST 11, 1893.

LIBRARY

All Advertisements and communications relating to money matters, or to the sale of the Photographic News, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the Photographic News at the same address.

The Photographic News is issued every Friday, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

The Photographic News.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

Alexander & Shepheard, 21, Furnival Street, London, E.C.

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EARTHQUAKE PHOTOGRAPHY.

WITH the July number of the *Journal of the Photographic Society of India* is published a remarkable picture, showing the distortion of railway lines caused by an earthquake, which occurred in Baluchistan on the 20th of December last; and some notes concerning the phenomena observed on this occasion will be found in the last number of the *Records* of the Geological Survey of India. The view in question is taken at a spot where the railway makes a curve, and in the very middle of this curve the two rails have apparently been pressed longitudinally by a force which has bent them into loops, thus shortening the length of the road by several feet. Similar photographs showing the distortion caused by seismic force upon rails and other iron structures have before been taken, notably the excellent ones published by Professor Burton in conjunction with Professor Milne, which appeared soon after the terrible earthquake which recently devastated a large district in Japan. Such photographs show, in a very marvellous manner, the direction in which the earth wave has passed, and, in conjunction with the many ingenious instruments which have been devised for making observations of a kindred nature, cannot fail to be of use in helping mankind to guard against such outbursts of Nature, although he cannot possibly prevent them.

Photography has taken part in this work of making records of earthquake mischief since its earliest years. In the year 1856 a fearful earthquake visited the district around Naples. Many villages were overthrown, and it was estimated that in three seconds twenty thousand persons perished, and many more were injured. Robert Mallet, at that time *the* authority on earthquakes, visited the district; made sketches and measurements of the fallen walls, noted the direction in which they had fallen, and took photographs of many of the dilapidated buildings. And photographing under such conditions, with the old bath process, meant real hard work, such as the modern explorer, with his dry plates or roll-holder, has no conception of. But Robert Mallet did this work, and the records remain, in a somewhat faded condition, in the form of a number of prints on albumenised paper, which illustrate a book on the Great Neapolitan Earthquake, which was subsequently published by him. We are uncertain whether all the edition of the work in question contained these pictures, probably not; but we believe we are right in saying that a copy of the work so illustrated can be found in the library of the British Museum, and that another copy is preserved by the Royal Society. The publication of this work was, perhaps, the first occasion upon which the need of a process for rapidly reproducing photographs was urgently felt.

Robert Mallet was a careful observer, and his studies with regard to the terrible destruction and loss of life caused by the Neapolitan earthquake are well worthy of careful perusal. He gave it as his opinion that the loss of life by such catastrophes would be greatly lessened, if not entirely obviated, if architects would only design structures to withstand the earth movement. That this can be done is evidenced by what has been achieved by many towns in the Cheshire salt district, where the constant pumping of brine and consequent dissolution of the rocks below ground have caused subsidences and alterations in the land's surface, which, in their suddenness, can often be compared to earthquake effects. The inhabitants of these places have long ago recognised the futility of building in the ordinary way upon such an insecure foundation, and now most of the houses are framed with timber, like the dwelling-places of a former day, so that they shall be self-supporting. The structures, on the other hand, which are built in the more common way, are so distorted by strains, first in one direction and then in the other, that many a street looks like a drawing in which the artist has done his best to divert his horizontal lines from the vanishing point.

Another interesting photograph of interest in connection with earthquake phenomena reached us some time ago. It was of Japanese origin, and represented a house purposely designed to resist earth movement. In appearance it seemed to be a one-storied bungalow, and its only remarkable feature was its supports, which consisted of four round cannon balls, one at each corner.

A great deal of good work with the camera, in connection with volcanic phenomena, has been done in recent years by Mr. Johnston-Lavis, and his book upon the volcanic region, which finds its centre among the Lipari Islands, is full of interest. Moreover, it is illustrated by a number of good collotypes from the author's negatives.

There are, indeed, few places on the globe which exhibit signs of hidden subterranean energy which have not been visited by the photographer. In our own country such manifestations are almost extinct, although we are reminded by the occurrence of hot springs at Bath, Bristol, Harrogate, and elsewhere, that there is heat below us which might be prompted into more violent doings. The rocks tell us that terrible upheavals of the crust of the earth have, in past times, been witnessed in Britain, and we can only be thankful that we are free from such visitations now. There is a certain fascination about these things which have often led men to danger and death; we can study the effects which they bring about almost as well as if we visited them, and without any risk whatever, by means of the photographic records to which we have called attention.

PHOTOGRAPHY IN AUSTRIA.

ON THE ACTION OF THE EIKONOGEN DEVELOPER AND ITS COMPONENTS.

BY PROFESSOR ALEX. LANIER.[*]

THE very delicate images produced by the eikonogen developer are characteristic of it. Increasing the proportion of eikonogen in the developer produces denser negatives and heightened contrasts. Though eikonogen is in itself a very powerful reducer, yet, compared with hydroquinone, it is a developer of little energy, which is seen at once if one considers the quantity of eikonogen and of hydroquinone necessary for one development. The relation is about 4 ÷ 1, so that about 4 grammes of eikonogen and 1 gramme of hydroquinone have equal reducing power. Eikonogen cannot be prepared in very concentrated stock solutions; the addition of an alkali (potash) is necessary to increase the solubility, but yet it does not attain to that of pyrogallol or hydroquinone.

Mixed eikonogen developers do not keep well, and, therefore, it is impossible to develop many plates one after the other in the same solution. Even the eikonogen solution containing sodium sulphite, without soda or potash, keeps only a comparatively short time; the developer easily turns brown, which makes it useless for developing, though it has been suggested that writing ink might be made with it.

With caustic alkalies, without the addition of soda or potash, it mostly produces fogged negatives.

The addition of much bromide of potassium stops development of detail in the shadows in a much higher degree than with hydroquinone. One drop of tincture of iodine, 1 ÷ 100 *pro* 10 cm. eikonogen developer, acts favourably on the gradation, if hardness is to be avoided in the negative. Hyposulphite of soda acts as a retarder.

Glycerine tends to prevent fog without keeping back the detail in the shadows, and it makes the developer keep better. I used as a maximum, 20 cm. glycerine per 400 cm. developing solution. Under some circumstances such an eikonogen developer containing glycerine produces negatives with strikingly, sharply marked lines. I have sometimes observed this phenomenon in other developing substances, and believe it might be turned to account in reproducing.

Yellow prussiate of potash did not produce any striking results in my experiments with eikonogen developer which would justify its use, yet in some formulæ it is prescribed.

Sodium sulphite has a developing effect, even without the addition of soda or potash. In the ordinary eikonogen developer, it affects the tone of the negatives, which with it shows a beautiful grey colour, and it makes the developer keep better. By decreasing the sodium sulphite the energy and contrasts of the negatives are increased. By omitting the sodium sulphite and keeping the other proportions of the mixture a maximum in that direction is attained, at the same time the negatives show a faint brown tone.

With little soda or potash, and caustic alkalies and slow development, very tender negatives with all the details are obtained; an increase produces more energetic negatives with greater contrasts; caustic alkali makes a rapid developer.

Example of a rapid eikonogen developer :—

A.

Water	400 cm.
Crystallised sodium sulphite	20 to 80 grammes
Eikonogen	8 "
Glycerine	20 cm.

B.

Water	80 cm.
Caustic potash	10 grammes

Before using, mix 50 cm. A with 5 to 15 cm. B, and add at need a few drops of bromide of potassium. Time of exposure, one to two minutes. I for my part much prefer the rapid hydroquinone developer to this rapid eikonogen developer.

---

[*] From the *Photographische Correspondenz.*

Some plates produce yellow images if developed with eikonogen, particularly if caustic alkalies are present.

One will hardly have to complain of the colouring of the images if, after the development, the negatives are rinsed a short time, then dipped into a dish of water containing per litre 1 cm. muriatic acid, and then mixed again and fixed in an acid fixing bath. Shorter exposure and longer development produce red fog. Changing the proportions will make any developer either hard or soft.

As eikonogen and hydroquinone with the ordinary developing formulæ show contrasts in the character of the negatives produced, the former making very tender but hydroquinone very plucky negatives, it has been attempted to effect a compromise by mixing, an attempt that has proved very successful. Here is another formula :—

A.

Water	1,250 cm.
Sodium sulphite	150 cm.
Eikonogen	12½ grammes
Hydroquinone	7½ grammes

B.

Water	250 cm.
Carbonate of potassium	75 grammes

Before using, mix five volumes of A with one volume of B. This developer is strongly recommended for portrait and landscape photography.

ADVERTISING DODGES OF PHOTOGRAPHY.

VARIED and curious are the methods and dodges sometimes adopted by the photographic fraternity to attract the attention of desirable clients, and to increase their business. We do not, of course, refer to such outrageous frauds as the free postal portrait business, and similar swindles, which have very rightly been severely punished ; but to more legitimate, even if questionable, ways of advertising or attracting attention.

Some time ago, in England, it became a favourite dodge with many photographers to photograph babies free of charge ; the idea being, of course, to win the favour of the mother through the child, and so obtain the custom of the family, and the work of photographing other members of the family. Moreover, only one copy was given to each child, and, if it was successful, it was in very rare cases only that no more copies were ordered.

We call to mind, however, the fate of one unlucky photographer who advertised "Babies taken free of charge" for three days only. Unfortunately for him, he lived in a district very thickly populated by the poorer class, and where babies sprung up like mushrooms. The first day, his studio was literally besieged by babies—babies big, babies little, tall babies, short babies, fat babies, lean babies, babies of every description, with their mothers and nurses. According to a stray evening paper reporter, the streets for miles around were filled with perambulators. Traffic was suspended, as people flocked for miles to see the strange sight. Evening paper reporters are, however, not always to be relied upon, being at times very careless in handling the truth. However, it would appear the photographer found he had rather overdone it in the matter of babies, for before the day was over he had to close his shutters, and in the night he stole far, far away, a sadder and a wiser man.

In the way of catchy advertisements, we remember not long ago seeing the following :—

PORTRAITS
of the finest quality are
TAKEN
here from 10 a.m. to 6 p.m.
Full particulars and price list
FREE.

The large letters, "portraits taken free," naturally arrested the attention of the passer-by, and thus the object of the photographer was gained.

A somewhat similar catch was used by a Parisian photographer. In his window, among the specimens, he inserted a placard bearing the inscription :

Exhibition of 1889.
LARGE GOLD MEDAL
Refused by a pack of incompetent judges.

The announcement of the medal alone attracted the attention of the passers-by, while the "injustice" of the jury remained unnoticed.

A South London photographer once put up a notice running :

WHAT DO YOU THINK
I WILL
TAKE YOUR PHOTOGRAPH
AND
GIVE YOU A DOZEN COPIES
FOR NOTHING.

Naturally enough, the astounding offer induced numbers of curious people to enter the studio and inquire about its genuineness. "What offer do you mean?" the photographer would reply, with feigned astonishment. "My dear sir, it is evident that you have not read my notice aright. It should read :

"'WHAT!!! DO YOU THINK I WILL
TAKE YOUR PHOTOGRAPH
AND GIVE YOU A DOZEN COPIES FOR
NOTHING?'"

Many would, of course, be disgusted at the way they had been swindled ; but others would see through the joke, laugh, and perhaps, being right in the studio, think it a good opportunity to be photographed.

A Glasgow photographer was unfortunate enough in having his studio up on the fifth floor. For a long time he had much difficulty in inducing customers to climb up so many stairs, and elevators were unknown. At last he hit upon a plan. A notice stationed out in the street bore the legend :

STUDIO
2nd
Floor.

Arriving at the second floor the customer was greeted with the legend :

STUDIO
Removed
to
Fourth Floor.

Arriving at the fourth another notice was found bearing the announcement :

During Alterations
Studio Temporarily
Removed to
Fifth Floor.

Having arrived so far, the majority of customers, it is said, preferred to ascend the last staircase rather than return. The adoption of high-sounding foreign names has also become rather fashionable among a class of photographers owing to the popular fancy and tendency of Englishmen and Americans to worship any artist bearing a crack-jaw foreign cognomen. Mr. John Smith, photographer, becomes

Monsieur Latroissette,
Artist Photographer,
de Paris.

Only quite recently a gentleman wrote, bitterly complaining of such deception on the part of photographers. It appears he entered a photographic studio, the photographer trading under a high-sounding French name, and heralded his recent arrival from Paris. The gentleman's wife was a Frenchwoman, and spoke to him in her native tongue. He looked rather bewildered, and said, "I speak English, madam." But even this he couldn't do, or rather it was with a very strong Irish brogue.

When, however, the photographer is a *bona fide* foreigner, he not unfrequently comes to grief over his advertising notices, as did one not long ago when he fixed up a large notice announcing the fact that

Children
Executed
in the
Shortest Time.

Needless to say this notice did not prove a desirable attraction with the mothers of children, who naturally objected to leaving their offspring to the tender care of the professed executioner.

Max Madder, *Photo Times.*

◆

Fallowfield's P.O.P. Mountant is a most excellent preparation. It will mount not only gelatino-chloride papers, as its name would seem to imply, but is equally efficient with every other kind of photographic print. Its basis is starch, and it is therefore a very clean preparation to use. It is sold in large square bottles, with screw top, as shown in the annexed cut, and its price is only one shilling.

VARNISHING.

THE following remarks and formulæ have recently been published by Dr. Valenta, and will be valued by users of films and plates alike :—

"Most amateurs find the operation of heating the plate before varnishing too troublesome, and prefer, therefore, the so-called 'cold varnishes,' which are sold a good deal to-day, and mostly under names of no meaning, but simply intended to sound well and to mystify the purchaser."

These cold varnishes answer the purpose more or less well. Their composition varies, as shown by an investigation made by me of a number of them, both as regards the quantity as well as quality of their several components.

In the journals we find a very few reliable remarks about cold varnishes, as the manufacturing of the same is only of a recent date, and the article has just commenced to become popular. This, and the circumstance that a good many professionals made inquiry about their composition, was the reason for those investigations whose results are published in this article. After mentioning all the high-sounding names, he distinguishes :—

"(*a*) *Alcoholic Cold Varnishes.*—This kind of cold varnishes are mostly solutions of gum sandarac in alcohol; but as such a solution of sandarac in alcohol will give only a matt surface, these varnishes contain certain other additions. Such additions are oil of lavender, oil of citron, &c., and I give in the following a formula for the production of such a varnish, which I have found and tested in my own investigations :—

Gum sandarac	18 grammes.
Alcohol	100 c.c.
Oil of lavender	1 „

"This varnish dries pretty slowly, but gives a solid and only slightly sticky film, excellently suited for retouching. In this regard it is to be preferred to many other products, which, even after hours of drying, will leave impressions if touched with the hand.

"(*b*) *Cold Varnishes containing Ammonia.*—Such a varnish is, for instance, the 'crystal varnish,' of Dürkes. Such varnishes are easily recognised, even if no great excess of ammonia should be present or if they are perfumed, as, when heated, they will always emit fumes of the ammonia, easily discernible by its odour and the alkaline re-action of the gas. These varnishes are an imitation of ammonia-shellac varnishes used in crayon and lichtdruck, and contain mostly shellac as the varnish substance. This gum, dissolved in pure alcohol, does not give a clear film if the plate has not been heated before, while an addition of ammonia will result in the formation of clear films even upon cold plates. The ammonia is added mostly after the solution of the shellac in alcohol has taken place.

"The spirits of wine varnishes dry pretty slowly in the cold, but give solid films, which adhere well and form a fine surface for retouching.

"For the production of such varnishes a solution of ammonia-gas in alcohol is, according to my experiments, the most suitable; in this the shellac will only swell in the cold, but will dissolve easily to a clear, yellow liquid when slightly heated.

"In the following I give a formula for the production of such a varnish:—

"Ammonia alcohol	100 c.c.
Shellac	8 grammes.

"If the varnish is desired thicker, the quantity of shellac can be increased up to 14 per cent. The product on the market is made, as mentioned, by dissolving the shellac in alcohol and subsequent mixing with ammonia in aqueous solution.

"(*c*) *Cold Varnishes containing Ether and Acetone.*—These varnishes contain either sandarac or some very hard gums, copal, amber, &c., in which latter case they excel in quickness of drying and great hardness, while the cold varnishes of this kind containing sandarac are generally somewhat sticky for three to five minutes after flowing. In the following I give a formula for the production of a very good, rapidly drying, and very hard cold varnish: 30 grammes angola copal and 5 grammes amber are powdered and mixed with—

Ether	300 c.c.
Acetone	200 „
Chloroform	10 „

"These gums are brought to a partial solution by prolonged standing in the solution and shaking from time to time, or, what is simpler and quicker, the mixture is digested from one to two hours with the dissolving medium. A part of the gum will dissolve quickly, and a clear, yellow liquid will form, which, poured upon glass, forms a quickly hardening, clear and solid film, which is very good for pencil retouching.

"(*d*) *Benzole Cold Varnishes.*—The principal ingredient of this kind of cold varnish is sandarac or gum damar. Varnishes prepared with the latter gum are always softer than the former. As these gums dissolve only with difficulty in benzole, artificial means must be employed, by treating the gum first with a little alcohol, and then adding the necessary quantity of benzole. If proceeded with in this manner, clear varnishes are obtained, which furnish a solid; but, by employing gum damar, a slowly hardening, clear film.

"A good formula of this kind is the following:—

Benzole	90 c.c.
Alcohol	10 „
Gum damar	8 grammes.

"This gum can also be applied to papers, and, for this purpose, a corresponding dilution is necessary. In such a varnish I have been able to trace a small addition of gutta-percha.

"(*e*) *Collodion Cold Varnish.*—Varnishes of this kind sold in market (crystalline, brassoline, Zapon-varnish) mostly all contain amyl-acetate. They consist of collodion, which has been dissolved in amyl-acetate and acetone with or without the addition of benzole, and sometimes camphor.

"The quantity of amyl-acetate in these varnishes makes the use of the same, under certain circumstances, very disagreeable; but they form very solid and well-adhering films.

"Such a varnish can easily be produced by pouring 1,000 c.c. acetone upon 150 grammes collodion wool (soluble cotton), and then adding a mixture of 2,000 c.c. amyl-acetate and 2,000 c.c. benzole. The so-obtained solution still contains small fibres of undissolved pyroxyline, and is, therefore, somewhat cloudy, but is cleared the same way as collodion by filtering and precipitation.

"Finally, I will mention a varnish which I did not find in the market, but consider the same an improvement on the ordinary benzole varnish (group *d*).

"This varnish can be obtained by mixing:—

Sandarac	100 grammes.
Benzole	400 c.c.
Acetone	400 „
Alcohol	200 „

and, after solution, filtering the same through paper. The varnish can be produced quickly—particularly if heated carefully in the water bath—clears well, and gives clear, quickly-drying films, which are harder than those which are furnished by the ordinary benzole cold varnishes which frequently contain damar. As the most serviceable of the varnishes mentioned here, I consider the very hard etheric copal varnish whose formula I have given under *c*, but which, on account of its containing ether, may be of some inconvenience in application and keeping; otherwise, the last-mentioned sandarac cold varnish, which corresponds to all the average requirements which are expected from varnish for dry plates, and, besides this, can easily be produced."

* * *

RECENT DISCOVERIES IN COLOUR PHOTOGRAPHY.

FROM a time ranging beyond the memory of man, and long before the present process of photography was invented, announcements have been made of the discovery of a process giving images of all the glorious colours of Nature.

Like the reports of the sea-serpent, these announcements have been made periodically. First it was Seebeck, in 1810, then Herschel, Hunt, Becquerel, Niepce, jun., Simpson, Poitevin, and St. Florent. All the foregoing experimenters tried hard to solve the problem. There have, too, been many cases of deliberate fraud. As far back as 1851 an American preacher, named Hill, obtained almost universal credence for his statement that he had invented a process by which he could produce photographs "glowing with all the colours of Nature."

The reverend gentleman succeeded in obtaining very considerable sums of money from photographers for subscriptions to a book which would contain all the details of his marvellous discovery. The book, which, after repeated delays, at length appeared, was an unmistakable swindle. Other similar cases could be cited. In England, many companies have been formed for the purpose of making a natural-colour process. Large sums of money are subscribed each time, although the money invariably goes to the company promoters and to the Bankruptcy Court. The process itself usually consists in a photograph coloured at the back or between the film and the paper.

It is lamentable that the ignorance of the lay press of photographic matter is apparently so great. Directly there is a rumour that experiments have been made by any one in photography in colours, no matter by what means, they unhesitatingly blaze forth to the world such announcements as "Photography in colours discovered at last," and devote a column or two to considering the damaging effect this discovery will have upon artists whose occupation they would usually have us believe would be gone for ever.

Only recently we have two such instances. First, in the composite heliochromatic process of Ives; and secondly, in the interference process of Lipmann, improved by the brothers Lumière.

Lest any of our readers should have any mistaken idea about these discoveries we will endeavour to explain them. Ives's process is the more important, and this is practically a method of imitating nature by a superposition of monochromatic images. Basing his experiments upon the assumption that there are to the eye three sensations only—*i.e.*, red, green, and blue-violet (all other colours exciting two or more of these sensations)—he proceeds to make three negatives of the coloured object. First, one taken through a screen, which allows the colour corresponding to the red sensation only to pass through; another negative is taken through a screen, allowing only the visual green to pass, and a third arranged for the blue-violet sensation. Now, if transparencies were made from these negatives in the three colours, and combined, a coloured image resembling the original would result from the combination. Ives's method, however, is to again employ the principle of absorption. He causes the light passing through the red sensation transparency to traverse a red-coloured screen. In front of the green sensation transparency a green screen is placed, and in front of the blue-violet transparency a nearly pure blue. When the images of these transparencies are superposed on the screen, a coloured image, faithful to the original, is produced.

Lipmann's process is due to the interference of light. The term interference is given to the reciprocal action which two rays of light exert upon each other. Examples are seen in thin films, a soap-bubble, for instance; or if we moisten a sheet of glass, and press another glass on the top of it, the thin film of water between the two glasses will produce all the colours of the spectrum. Upon this Lipmann's process is based. No really lucid description of the process has been given, but it would appear that the colours of an original can in no way be reproduced. A red, for instance, may give a red image; but at the same time, by increase of exposure, give a blue or green or any colour. Moreover, these images are difficult to be seen. The plate must be viewed only at a certain angle, the colours varying with the inclination. At no time do the colours ever truly represent all in the original, or, at least, the inventors have, as far as we can find out, studiously avoided any comparison. We are told by others that the whites are a dirty grey, and the coloured parts are a long way from the colours of Nature.

It will therefore be seen that with neither of these processes is the problem solved. In justice to Mr. Ives we must say that he no way pretends his process to be a natural-colour one. He terms it Composite Heliochromy. We have no hesitation in saying that, except that our knowledge of colour vision has been much extended, *photography in natural colours is to-day as far off as ever it was.*

Will it ever be possible? you will ask. Captain Abney says not; but we would avoid making such a direct assertion. Many of our most important inventions now in common everyday use would have, years ago, been regarded as impossible. Why not the same, then, with succeeding years? Nothing is more imminent than the impossible: what we must always foresee is the unforeseen.—*Photographic Times.*

PHOTOGRAPHY IN FRANCE.

BY LEON VIDAL.

Photography of the Clouds—Surveying by Photography—Method of Preparing Compensating Screens—Interesting Application of Sheets of Metal to Transfers—Of Separation in the Matter of Stereoscopic Prints—International Exhibition of the Photo Club of Paris.

MONS. ANGOT, one of our most learned meteorologists, is actively employed in making photographs of the clouds, and he has recently made a very interesting communication on the subject to the French Society of Photography. The proofs exhibited by him, and projected on the lantern screen, are remarkable. The lightest cirrus is perfectly reproduced, detached, and floating in shadowy vapour upon a deep-toned sky. Mons. Angot uses orthochromatic plates, sensitive to yellow and to green. In order to absorb the blue radiations, he employs a liquid screen formed by a vertical tank containing a 10 per cent. solution of bichromate of potash.

The time of exposure is evidently very short; but Mons. Angot does not forget to employ a diaphragm as small as possible, with a view to obtaining images minutely and clearly defined.

Colonel Laussedat, who is the first promoter of the application of photography to surveying, has been endeavouring to collect all facts corroborative of his theory. He has not, so far, succeeded in France, where the force of routine is stronger than that of progress; but elsewhere he has made use of his method with most satisfactory results in the way of saving both time and money, and in regions difficult of access and of survey.

At the last meeting of the Society of Photography, the learned Colonel gave another proof of the soundness of his theory, by stating the facts relative to the construction of the map of the Rocky Mountains of Canada. This map has been constructed to scale solely by the aid of photographic views taken from the summits of a trigonometrical survey, and published by Mons. Deville, Surveyor-General. It had hitherto been found impossible to undertake the construction of a topographic chart of Canada, in those mountainous regions ordinary methods being inapplicable ; but, on recourse being had to photography, the great value of the system advocated by Colonel Laussedat, and practised by him since 1880, became at once apparent and indisputable. It is, then, quite evident that this application of photography is one of the most important that can be made.

This question, as the Colonel has very justly observed, bears a strong relation to that of tele-photography.

Whilst on this subject, one word more with regard to the tele-photographic lens of Mons. Roudaille, which has excited so much attention at recent meetings of our societies.

Its back combination is a divergent lens of sufficiently large diameter mounted upon a tube sliding into another. A properly calculated gradation is engraved upon the interior tube, enabling the operator to fix upon the exact point for a desired enlargement in such a manner that he has nothing more to do than to be careful as to the position on the plate of any desired object. This fixing of the point automatically presents a very great advantage over any analogous apparatus.

It happens that certain negatives are found to have been taken under such conditions of light that they present a background of unequal intensity. If it should be desirable that in the prints from such negatives the background should be more even, the best method of attaining that end is to employ a compensating or graduated yellow screen, which can be prepared in the following manner :—An ordinary gelatine plate of convenient size is freed from its bromide of silver in a bath of hypo, after which it is well washed and dried. In a vertical bath is put a tincture formed by a solution of chrysoidine, and into this is plunged the plate, and a slow movement of it is continued from the first moment of immersion, becoming slower by degrees. After leaving it to dry the result can be ascertained. If it is not satisfactory it must be treated again in the same manner. It is possible, by the aid of successive baths of tincture, to give to the whole or part of the same plate a gradation of any intensity.

In this manner may be prepared graduated skies in order to complete by a subsequent second printing the impression of landscapes of which the original negatives only give white skies. A very ugly effect.

The English photographic papers have recently published articles relative to the employment of metal sheets for photo-lithographic transfers. It is a very good idea, since, by this means, it becomes possible to avoid the distortions consequent on the stretching of paper, which is apt to expand when wetted.

It remains to be seen if this could be made the vehicle for the transfer upon stone or zinc of transfers peculiar to polychromatic impressions of images, obtained by way of photographic selection. There would then be no occasion to resort to photogravure in order to obtain identical monochromes for transference.

Mons. Donnadieu, who has already published some important works upon the photo-stereoscope, has just broken new ground with reference to the separation of two images. He concludes, in spite of certain assertions to the contrary, that they ought always to be so placed that their centre corresponds with that of the lens, if the lenses employed are binocular, and of a fixed strength. Mons. Donnadieu combats divers theories which favour other solutions.

The Photo Club of Paris has published the programme of its exhibition of artistic photographs, which will be held from the 10th to the 30th of December, 1893, and which will be international. The object is essentially artistic. The programme informs us that the works exhibited will only be such as can boast of good technical execution and which possess a real artistic character, either in the choice of the subject, its lighting, or the composition of the picture (portraits, landscapes, subject pictures). The jury of admission will be composed of ten members chosen from among artistic and photographic notabilities. There will be no prizes, but each exhibitor will receive a commemorative medal engraved with his name.

There is reason to hope that the appeal of the Photo Club will be responded to, and that its endeavour thus to forward the cause of photographic art will receive the earnest support and encouragement of all true photographic artists.

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PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

13,820. Joseph Day, Scout Hill View, Dewsbury Yorkshire, "A New Apparatus for the Connection of the Fronts and Backs of Cameras, Stereoscopes, Graphoscopes, and the like."—*July 17th*, 1893.

14,002. Charles Ashley, 46, Lincoln's Inn Fields, London "Improvements in or Connection with Photographic Cameras."—*July 19th*, 1893.

14,036. Arthur John Buncher, 6, Livery Street, Birmingham, "Improvements in Magazine or Detective Hand Cameras."—*July 20th*, 1893.

14,045. William Phillips Thompson. 6, Lord Street, Liverpool, "Improvements in Hand Cameras for Photographic Purposes (Alois Delug, Germany)."—*July 20th*, 1893.

14,074. Benjamin Joseph Edwards, 45, Southampton Buildings, Chancery Lane, London. "Improvements in Apparatus for taking Photographs on Sensitive Plates or Films."—*July 21st*, 1893.

14,163. William Ritchie Baker, 9, Belmont Villas, Wallington, Surrey, "An Automatic Changing Box for Photographic Films."—*July 22nd*, 1893.

14,364. Alfred Watkins, 28, Southampton Buildings, Chancery Lane, London, "Improvements in Instruments for Calculating Photographic Exposures."—*July 25th* 1893. (Complete specification.)

14,432. FREDERICK TYAS YOUNG NIBLETT, 53, Chancery Lane, London, "An Improved Focussing Appliance for Photographic Cameras."—*July 26th*, 1893.

Specification Published.

6,906. *April 4th*, 1893.—"Photographs." L. M. WILLIAMS, 1, Upper Camden Place, Bath.

Relates to a process and combination of materials for the treatment of photographs previous to colouring. The process is carried out as follows :—

1. Clean the glass with white wax and edge the same with gum, then coat the waxed glass with collodion and let stand for six hours.

2. When thoroughly dry pour a solution of gelatine and glycerine well mixed over the plate and let stand until quite dry.

3. Then place on the prepared side of the glass (which must be wetted) the photograph print (also wetted), albumenised side downwards, with a squeegee, and let stand for thirteen hours.

4. Place the plate in hot white wax, photo upwards, and let remain until transparent, then move from wax and let remain until cold. Then cut the picture round the inside of the gummed edge and remove the same from the glass, after which remove the glaze from the print with a knife, which will then leave an ivory surface to the print, which is then ready for painting. The picture is now placed on a piece of clean glass face downwards, gummed at each corner, and colour it with oil paints. When the photo is quite dry remove the picture from the glass and it is then ready for framing.

Printed copies of the full specification of above patent may be obtained by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

August 3rd.—Mr. T. BOLAS in the Chair.

Mr. E. H. BAYSTON showed a portrait taken in the open air. To get good effect of lighting on the face, an umbrella had been used overhead.

Mr. HADDON stated, with regard to a paper contributed by him and Mr. Grundy, that he had not the least doubt that with lukewarm water the washing would have been still more rapidly effected.

The CHAIRMAN said that the investigations now made were of great importance, and it was surprising that photography should have existed for over half a century without their having been made earlier. At the same time, those who had not had experience in such matters would have no idea of the labour involved in making these quantitative tests of minute quantities. The shortness of time really required for washing would probably take many photographers by surprise. At the same time, some writers, however, had advocated it, especially in conjunction with forcible extraction by the squeegee. Mr. Debenham had particularly recommended that washing, and he would call upon him to address the meeting.

Mr. W. E. DEBENHAM said that investigations such as those described were of the greatest service to photography. If those and some others in connection with printing had been carried out and published in the early days of photography, there would probably have been less ground for complaint with regard to the permanence of photography. It would be desirable to experiment with a pure paper, without albumen, to eliminate the question of the sulphur contained in the substance. In some old experiments with albumen paper he had found a bath of alum after fixing and washing, such as they now used with gelatine paper, tend to permanence. He would like to have the view of the Chairman on the matter, especially with regard to the question of the action of organic matter on sulphates.

Mr. HADDON remarked that in gelatine paper there was generally a coating of sulphate of barytes.

The CHAIRMAN said that if any sulphate of lime were formed from the alum, it was soluble, and would be removed by washing. Sulphate of barytes did not react with organic matter, and give out sulphuretted hydrogen as sulphate of lime did ; at all events, he had kept them for a considerable time in contact without finding any such action.

Mr. LEVY said that the investigation was, so far as it had gone, complete. The presence of silver and of sulphur in the same print did not prove that they were in combination. Stass had conclusively shown that we may arrive at a point where two reagents would not react upon one another. The sulphur might be in the state of metalloid sulphur when no reaction would take place.

The CHAIRMAN said that it was not very easy to see how it could be settled as to whether the sulphur existed in the state of hyposulphite of soda. It would be quite in vain to seek for such a small quantity of the alkali.

Mr. GRUNDY said that they had it in view to experiment with pure paper, also with albumen by coating plates with it.

Mr. MACKIE suggested that there might be an organic salt of silver formed with the albumen not soluble in hypo.

Mr. DEBENHAM said in connection with that matter that what was not soluble in hypo might be in sulphocyanide, and experiments were necessary with the two, used either together or successively.

The CHAIRMAN proposed a vote of thanks, which was carried by acclamation.

HACKNEY PHOTOGRAPHIC SOCIETY.

Tuesday, August 1st, 1893, *at* 206, *Mare Street, Hackney*.—Mr. W. J. HENSLER presiding.

MEMBERS' work was shown from Messrs. Barnes, Cross, Fort, Hankins, Hensler, Nunn Puttock, and Roofe.

Mr. BARNES showed a negative—a portrait—which was spotted all over the face. It was suggested that it was some incipient skin disease, but it was negatived by its having the same spots over the eyes.

Mr. NUNN showed a bromide paper print developed with amidol, and asked what caused it to have a yellow tint in places (not stains). No satisfactory reply could be given.

Question Box.—What action takes place when an exposed plate is first placed in the alkaline solution only, previous to pyro? *Reply*.—A mechanical action only, by which the alkali penetrates deeper into the film, so that when pyro is added more detail is insured.

A case lined with ruby cloth, from Messrs. Doublets, was shown, for storing untoned prints.

Mr. HENSLER showed a lantern plate, of which he had many similar, which on developing was veiled over, and which a clearing bath would not remove. It was an Edwards' Special, bought about twelve months ago. Messrs. Cross, Hankins, and Hudson had had the same experience ; no doubt they came from the same batch.

A discussion then took place as to in what way the Saturday outing might be improved. Some practical suggestions were made.

Brixton and Clapham Camera Club.

A meeting of the above Club was held at the Clarence Rooms, Cold Harbour Lane, Brixton, on Tuesday, August 1st, at 8 p.m., the chair being taken by Dr. J. **Reynolds**, F.R.G.S., President.

Mr. **Morgan** attended on behalf of Messrs. Fuerst Bros, and gave an exceedingly interesting demonstration upon the methods of using the new developers, amidol and metol. He advised amateurs to use the separate developer, mixed as stated on the instructions issued by the company. For bromide work the concentrated solution should be used at nearly its full strength if a black image is required, further dilution giving a cold, grey image. The exposure for plates, &c., should be reduced to half of what would be given were pyro used as developer. Very much over-exposed plates tend to produce fog, but it will be entirely absent if the exposure is not excessive. In using these developers to develop plates, bromide paper, and lantern slides the members of the Club were pleasantly surprised at the entire absence of veiling and stains. Mr. Morgan stated that the hands will not be stained unless the dry chemical is touched. The solutions may be used over and over again, Mr. S. H. Fry having developed as many as twenty half-plates in 2 ounces.

At the conclusion of the demonstration a vote of thanks was passed unanimously for Mr. Morgan's thorough explanations of the methods of working these developers, and several members promised to take up amidol and report the result in due course.

The next meeting of the Club will be held on August 15th, when the Paget Plate Company will give a demonstration before the members of the Club. Photographers residing in the locality are cordially invited. One of the Committee of Instruction, Mr. Edwards, will be present to answer any questions upon photographic subjects, which may be put by any members requiring elementary information, and it is hoped that all beginners will fully avail themselves of the opportunity thus afforded.

Liverpool Amateur Photographic Association.

The ordinary monthly meeting was held in the Club-rooms, Eberle Street, on Thursday, July 27th. In the unavoidable absence of the President (Mr. A. J. Cleaver) Mr. Wm. **Tomkinson** was voted to the chair.

The following gentlemen were elected members of the Association—viz., Mr. Thos. A. Collinson, Rev. J. F. Anderson, and Mr. Edward R. Dibdin.

The **Chairman** gave a report of the excursion to Shrewsbury and Much Wenlock, which took place on Saturday, 22nd inst., under the leadership of Messrs. Gottlieb, of Shrewsbury and Paul Lange.

The revised rules for the annual competition were passed.

Mr. J. A. **Sinclair** (Messrs. Adams & Co., Charing Cross Road, London) was then called on to show the latest photographic specialities and novelties, including the "1894" Adams' camera, with swing back and rising front, the ideal cameras, ordinary or twin lens, "Lightning" stand pantoscopes, aluminium view meter, "Adjustable" shutters, club cameras in brass and aluminium, &c.

Sheffield Photographic Society.

The ordinary monthly meeting of the above Society was held at the Masonic Hall, Surrey Street, on Tuesday evening, August 1st, Mr. E. J. **Chesterman** in the chair, when, after the routine business of the meeting, Mr. B. J. Taylor and Mr. E. Beck were appointed delegates to represent the Society on the Council of the Affiliated Societies of Great Britain; after which the prints of the Photographic Exchange were submitted to a severe but good-humoured criticism, which will no doubt lead to good results, and be for the benefit of the Society generally.

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ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

C. H. H.—Ten Leclanché cells would be sufficient to light a five-candle power lamp for dark-room use. But, as you are probably aware, this form of battery quickly polarises, and must have time to recover itself. It is this that makes it so valuable for the intermittent work of bell ringing, &c.

Janus.—A wirework background of the kind you describe for photographing flowers, &c., was illustrated some months ago in one of the American magazines. We will try and find the reference for you.

J. P.—You will find a formula for ferrotype collodion on page 207 of the "Year Book" for 1892.

C. O. T.—If the two processes give equally good results at the same cost, by all means choose that which furnishes a copper face. Zinc is subject to corrosion, especially if any lye, such as is used by printers for cleaning type, comes in contact with it.

Galen.—We have never yet met with a case of sore fingers caused by hydroquinone, but find, on reference to our note-books, that that agent causes with some subjects a kind of eczema. The remedy is said to be the application of lanoline (a grease extracted from sheep's wool), covering the fingers with kid-glove stalls. As prevention is better than cure, it would be as well not to dabble the fingers in the developer at all.

Toner.—You have probably hurried the operations too much. Mix the borax with hot water and do not add the gold until it is tepid. Then let the mixture rest for half an hour before commencing to tone, and you will find it rapid enough and certain in its action.

C. D.—The exchange offered is a fair one, provided that the lens is in good condition. We should not advise you to conclude the bargain without submitting the lens to the maker whose name it bears. Worthless lenses with good names on their mounts are sometimes put on the market by those whose ways are crooked.

Querist.—The book is published by Cassell & Co., price 1s.

P.—The spots are due, we believe, to hypo contamination. We cannot be certain, of course, but we could without difficulty produce precisely the same result with hypo.

D. C. B.—The reply to your letter was delayed in consequence of its being addressed to the editor instead of to the manager of the paper.

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Messrs. **Taylor, Taylor, & Hobson** inform us that frequently within the last few months they have received complaints concerning the fraudulent use of their name on inferior lenses. Upon such small instruments as circular spirit levels, &c., this firm now impress a newly registered trade-mark of which they have forwarded us a copy. It consists of the initials T., T. & H. upon a heart, with a finely engine-turned ground, the whole being surrounded by a ring.

PATENT OFFICE

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1824. AUGUST 18, 1893.

NOTES.

MR. RUSKIN asks a conundrum of scientific folk: "What use has a serpent for its tongue, seeing that it uses it neither to talk, nor to hiss, nor to lick, nor to sting?" The question has been answered by Mr. W. H. Hudson, who suggests that the snake vibrates its tongue to concentrate the attention of its intended victim while the body behind is slowly trailed forward to effect the capture. And he likens the action of the wily snake to that of the innocent photographer.

"In most cases," he writes, "the movement probably would be detected but for the tongue, which attracts the eye by its eccentric motions, its sudden successive appearances and disappearances; watching the tongue, the long, sinuous body slowly gliding over the intervening space would not be observed; only the statuesque raised head and neck would be visible, and these would appear not to move. The snake's action in such a case would resemble the photographer's trick to make a restive child sit still, while its picture is being taken, by directing its attention to some curious object, or by causing a pocket handkerchief to flutter above the camera."

Dr. Hutchinson, of New Zealand, is of the opinion that every club and association in every branch of athletics should make constant use of photography for measurement as well as portraiture of its members. "Photographs of the finest men and those with the best athletic records should be placed in books of honour and on the walls of the club-house or gymnasium, together with the best men of other clubs. In fact the clubs all over the colony should exchange prints. Every town ought to have its Golden Book of its physical nobility, and entrance into it should be highly prized. Beside the photographs of the finest living forms obtainable should be hung prints of the finest statues, ancient and modern, and a couple at least of fine casts of life-size statues should stand in convenient places; all this to give the members of the club a standard of excellence that they may learn what noble form really is, and be incited to work themselves up to it as far as possible."

Although Dr. Hutchinson's remarks are intended only for the colony in which he is interested, photographers at home might take a hint from them. By circularising the members of their local club or gymnasium they might do a good stroke of business. The idea has the advantage of appealing to the vanity of athletes as well as being distinctly useful.

We have before us extracts from two transatlantic papers. One tells us that "the amateur photography craze which swept over the country like an epidemic" is dead, and that, "like every other 'fad,' it has had its day, and will shortly follow the roller skate into innocuous desuetude." The other, speaking of the fee charged at the World's Fair to camera-bearers, shows itself to be of exactly the opposite opinion. It says: "Even with a two-dollar fee and other restrictive regulations the amateur photographer makes himself, or, more correctly speaking, herself, unpleasantly numerous about the grounds. Much exasperation is caused on both sides by the way in which thoughtless spectators bump up against the camera artist just in the act of sighting kodaks for a snap-shot. Remove all restrictions, and enthusiasts pressing the button would swarm over the grounds, impede travel, and convert what is an innocent diversion into an intolerable nuisance."

That some more finely grained surface for the focussing screen than that afforded by the ordinary ground glass is often required, especially by microscopists, has long been conceded, and many substitutes for the glass have been from time to time suggested. The most recent is one proposed by Max Toch in *Der Rundschau*, which seems feasible, although we have not yet had an opportunity of trying it.

Here is the recipe. Take an unexposed dry plate, fix it, wash it thoroughly to remove the hypo, after which immerse it in a solution of barium chloride. In a few seconds remove the plate from the chloride, and without washing place it in dilute sulphuric acid, keeping it constantly on the move. A fine precipitate will then attach itself to the film, which, when dry, will form an ideal focussing surface.

A contemporary says that a new process for reproducing high-class works of art, called "Electrogravure," has been brought forward, and that it resembles in its effects the photogravure, which has done so much to displace steel engraving. No particulars are given; but, probably, the name is given—as it fairly might be—to a modified photogravure process; for photogravure is indebted almost as much to electricity as it is to light.

We should think that the *St. Louis and Canadian Photographer* cannot have been serious when it described the "Gaol Bird Camera Club," and reported that prisoners in the United States are allowed to while away their time with the delightful pursuit of photography. Perhaps the paragraph was concocted in order that the non-technical papers might seize hold of it as a fact. One London paper at least has done so, and improves upon the story by informing its readers that prison photography, in one case, had resulted in two warders being poisoned by one of their charges. This interesting prisoner had been allowed to order *prussic acid* wherewith to develop his photographic plates, and with this new developing agent he effectually fixed his keepers!

Mr. Alfred Bryan, who, as a caricaturist of theatrical celebrities, has had more experience than any other artist dead or alive, thinks that the history of the stage will be carried down to posterity far better by means of caricatures and characteristic sketches than by photographs. Photographs should never be allowed to take the place of sketches, he contends, because they do not give the moods or characteristics of a man in the way a sketch does. In fact, a single line will often recall a man's features far better than the best photograph in the world. Surely Mr. Bryan claims too much. A caricature may be better than a good many photographs, but is it not going too far to say it is better than the best photograph? The difficulty with the photograph lies with the sitter and not with the art. Given that the actor is in a happy vein, and the exposure made at the right moment, there is no reason why the characteristic lines should not be given quite as accurately as by the pencil of the caricaturist. Mr. Bryan is unquestionably right as to the value of those lines, for the merit of his own work depends entirely upon their presence. Otherwise his curious mannerism of investing all his faces with cheeks and chins of exaggerated roundness would be unendurable.

In an article on another page the ways of Californian amateurs are discussed. It would seem that some of the more venturesome are in the habit of seeking the Chinese quarter of the town at night, armed with camera and flashlight. They invade the opium dens, "braving the dangers of narrow corridors and the hidden hordes of murderous Mongols." While admiring the courage of the Californian A.P., we must express some sympathy for the poor Mongol, and feel that we might ourselves become "murderous" if our home or club were invaded in a similar unceremonious fashion.

A German paper states that a patent has been refused for, and the manufacture and sale been prohibited of, a paper so prepared that any ink mark upon its face can be erased by the simple application of a moist sponge. This is because the German Patent authorities are afraid that such paper would prove rather too tempting to the evildoer. We would that some good soul would invent a photographic paper from which the image—some images, at least—could be removed so easily.

The photographer who is commissioned to photograph a house will do well to note what is reflected in the windows, or he may get some very unexpected results. At a certain suburban railway station is to be seen a large photograph of a tradesman's shop, taken and used for advertising purposes. In the first floor window appears the proprietor's head stuck upon a pole, as though he had been decapitated. The effect is half droll, half ghastly, and presents quite a puzzle picture to the spectators as to how it is done. The explanation is very simple. Opposite the house was a much lower building on which a flagstaff was mounted, and this pole painted white was reflected by the window, the image unfortunately appearing just below the head of the proprietor, who was looking out when the photograph was taken. Moral, when awkward reflections cannot be got rid of by shifting the camera, open the window.

THE PLYMOUTH CONVENTION: REPORT OF THE DELEGATES OF THE PHOTOGRAPHIC CLUB.*

BY J. GUARDIA AND S. HERBERT FRY.

THE Photographic Convention of 1893 has come and gone. To sum up its results in a few words, we may say: Socially it has been a success; from a photographer's point of view, a failure.

Without precise instructions from the Club as to our duties, we have concluded to state our personal opinions for what they are worth, and to give you a brief diary.

The actual programme has, doubtless, come before you, the press having given full publicity to it, as also to the Convention papers. Our part we conceive to be to give you a personal report.

To us the most noticeable feature was a poor attendance. This is a matter for regret. That a gathering which promises and supplies such exceptional opportunities for recreation and intercourse should not be able, out of the thousands of amateur and professional photographers, dealers, &c., to attract more members, is a matter which merits the serious consideration of the committee of the Convention. We are inclined to attribute much to the date of meeting, and to hold it a cardinal error to have fixed upon one of the busiest weeks of the year, the week of half-yearly accounts, when a majority of business men are intent upon the adjustment of their books. An inconvenient date is not only unfortunate for those unable to go at such a time, but it is even more so for others who, intending to meet old friends, attend, and are disappointed.

There is still another grumble to which, as Englishmen and your delegates, we feel entitled. It is the continued folly of attempting to do too much in one week—too much on each day. The Committee should have experience enough by this time to know that photographers do not want a week of hurry-scurry, but a holiday, and also that most photographers like leisure and opportunity to take pictures when they take their pleasures, even if they take them sadly—the pleasures, not the pictures, which, by the by, is not characteristic of Conventioners. This year the opportunities were too few, and this was the more tantalising because the pictures were there in abundance, and only leisure was required to work. In fact, an 1893 Conventioner's diary might read as follows:—

Monday.—Journey down. Pleasant day in train. Gloated over a large supply of plates.

Tuesday.—Boat excursion. Rain saved plates.

Wednesday.—Listened to Convention papers. No exposures, but exercised changing box in the bedroom at night.

Thursday.—Excursion through fine country. No stops, so saved plates.

Friday.—Good boat excursion. Reaction too much. Shot plates at everything and anything.

Saturday.—Rail home, with unexposed plates.

Result.—Severe economy in plates.

And now, abandoning this sad hypothetical case, we descend to the Conventional—one week's work.

Monday.—We arrived just in time to dress and rush to the open meeting and reception. This function, honoured by the presence of the Mayor of Plymouth, was held in the Art Gallery, the rooms of which, though small, are suitable and convenient. Here was contained the Exhibition, without which—but for some reason which to your delegates is inscrutable—no convention is complete. About fifteen firms were represented, and enlargements predominated. There were no noticeable novelties, and it would not have been a matter of any difficulty to select the best exhibit. The Mayor welcomed us in a hearty speech. Then the general President of the Convention, Mr. George Mason, followed with his address—practical, lucid, and Scotch. Afterwards lantern slides were shown upon the screen. Among the exhibitors were Major Lysaght, Messrs. York, Cembrano, Hindley, Welford, &c., and many of the slides were exceptionally good. After the formal meeting was closed, an informal adjournment of the male Conventioners was made to one of the local hotels. The fragrant weed and social glass, the merry quip, jovial song, and the tall-talk and (still growing) yarn made all present forget that time was flying, and that the pleasant labours of the morrow called for refreshing sleep.

Tuesday was to have been the day of days, when, as the guests of the local clubs, who treated us most hospitably, we were to have enjoyed the pleasure of a steamer trip in the waters in and about Plymouth. Unfortunately, rain interfered, and somewhat marred the excursion. Still, we adhered to the programme, and it is high testimony to the efforts of Mr. Handsford Worth, the local Secretary—to the beauty of the surroundings and to the jolly dispositions of Conventioners—that, the rain notwithstanding, we enjoyed the trip.

Wednesday was devoted to business meetings, photographing the group of members—always an important function with the Conventioners—and the reading of papers. Threatening at first, the weather became finer as the day wore on, and, with its change in mood, Conventioners were drawn away from serious considerations to enjoy the sunshine and the surroundings. The photographing of the group concluded, and lunch discussed, papers at the Art Gallery became the order of the day; but the Gallery was sultry and oppressively hot, and the attendance of members—never large—became smaller by degrees and beautifully less, whilst the temperature rose by tens of degrees.

We think that, if the Convention is to remain anything more than a social and photographic outing, the arrangements for the reading, discussion, and reporting of papers at the Convention will have to be revised. Except so far as the publicity of the press is concerned, the meeting for the reading of the papers was a fiasco. Too many were attempted; consequently it was a rush against time. The discussions were inadequate, and the reports of the discussions, to our mind, very incomplete. Why cannot the Convention issue an official report of its own, after the manner of the Photographic Club?

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* Read at the Club, August 2nd, 1893.

On the Wednesday evening there was another reception—at Devonport this time—another lantern show, and more papers. The first discussed, *à la* tea and coffee, the papers taken as read, and the lantern show, a lucid interval.

Thursday.—The Royal Wedding-day. The favourite excursion was that to Totnes by rail, thence by steam launch down the Dart to Dartmouth, thence by rail to Plymouth. As a trip to see the country, charming; but for photographic purposes the excursion was disappointing. There was no opportunity, save a brief one in Dartmouth, after lunch, for taking pictures. Like the restless spirits of which we read in Dante, we were driven at high speed from place to place; no photographic opportunity was ours.

In the evening there was a meeting for papers, but the Wedding festivities on the Hoe and in the Sound prevailed. Like truth, which is also said to prevail, they were great. The view from Plymouth Hoe is a lovely one at all times, but on this special occasion, with the ships illuminated, bonfires on the surrounding hills, search-lights from the men-of-war in the bay, and jollity all round, the sight was most impressive.

Friday.—Three excursions divided the Conventioners. Those who with your delegates decided to visit the Cuttewater Hooe Lake and the Sound had the most pleasant excursion of the whole Convention. The steamer at our disposal was commodious and convenient, and we had ample opportunity of making exposures to our hearts' content; we thoroughly enjoyed ourselves.

In the evening the Convention dinner was successfully carried out. Afterwards music and recitations completed a very pleasant and enjoyable day, and practically brought to a close the 1893 Convention.

Saturday.—All excursions were abandoned for this day. This gave us the opportunity to roam about the quaint streets and quays of Plymouth as we liked, and we obtained some of the best pictures on this last day.

In bringing our report to a close, we hope to see the Convention strengthened by certain alterations in the arrangements.

Besides the points to which we have already alluded as requiring attention—viz., a more convenient date, an official or authorised report—we think there is still too much attempted in the time at the Convention's disposal, too much crammed into the week. As regards the excursions, the general Committee might make suggestions to the local Committee embodying the general experience of previous meetings and the requirements of the members. A local Convention Committee must always, and of necessity, be inexperienced as far as the requirements of Conventioners is concerned, for we meet but once and then pass on. But in the general Committee wisdom must have accumulated by now! In addition, we believe it would be to the general advantage if the business portion of the Convention—by which we mean the papers and discussions—were taken all together, *de die in diem*, instead of being sandwiched, as now obtains, between distracting entertainments.

And now, in conclusion, let it not be said that we are not grateful for the efforts made to please us. The energetic local secretary, Mr. Handsford Worth, and the local societies whom he represented, are to be congratulated on having beaten record for hearty and well-directed hospitality. Towards our Plymouth hosts and friends, if they will permit us the familiarity, we can only have sentiments of gratitude for the successful efforts which they made to entertain us, and their kindness will ever be one of our most pleasant recollections.

We have but one word to add—a member of this Club is the Hon. Secretary of the Convention. Mr. Cembrano is the right man in the right place, and to him the success of the Convention is largely due. We find it a pleasure to be allowed to express what we believe is the universal sentiment among Conventioners, hearty thanks for his energetic work in the past, and the hope that he may long stage-manage our photographic holiday.

We trust, gentlemen, that we have carried out our delegation to your satisfaction, and we hope that next year you will be able to dispense with such services by attending the Dublin Convention *en bloc.*

ON THE AMOUNTS OF SILVER AND HYPO LEFT IN ALBUMENISED PAPER AT DIFFERENT STAGES OF WASHING.

BY F. B. GRUNDY AND A. HADDON.

ANY one studying the literature of photography must be struck with the diversity of opinion expressed by different workers on the important points of fixing and washing prints, some recommending neutral and others alkaline hypo, and the strength of the fixing solution varying from five to thirty per cent., the length of time the print should be washed varying from one to twenty-four hours.

The danger of an acid fixing bath and its tendency to yellow the whites of a print, and in addition its doubtful fixing power, was first pointed out by Mr. J. Spiller in a paper he read before the Photographic Society of Great Britain on January 14th, 1868. Mr. Spiller in his paper says that "a hint was thrown out by Messrs. Davanne and Girard to the effect that the so-called 'pure whites' of the albumen prints still retained a small proportion of silver in an insoluble condition, and most probably in the form of sulphide."

Further on the author says: "My experiments went to prove that the metal was retained in the whites of the albumen print, and, indeed, in all parts of the coating, in the form of an argent organic compound, colourless, inalterable by light, and comparatively insoluble in hyposulphites and other fixing agents. It could not be a simple sulphide, for the test by which I discovered its existence in the paper was the production of a brown stain upon moistening the white surface with sulphide of ammonium." In a paper in the PHOTOGRAPHIC NEWS for October, 1862, Mr. Spiller recommended the addition of carbonate of ammonia to the ordinary hyposulphite fixing solution, for the double purpose of preventing by its alkalinity any chemical change or decomposition of the double hyposulphite; and, secondly, of directly aiding by its special solvent properties in the removal of this organic compound of silver.

In carrying out this research, we had two objects in view: firstly, to determine the time the print should be washed; and, secondly, to endeavour to determine the cause of the fading of the finished print.

Three sheets of albumenised paper from the same quire were sensitised on a fifty-grain neutral solution of nitrate of silver and allowed to dry in the dark. These were then cut into pieces 5½ by 8½ in. The pieces from one sheet were marked A, from the next B, and from the third C.

The paper thus cut up and marked was washed for ten minutes in running water till all free silver had been removed.

Two of these pieces, taken from different sheets, which could be easily recognised from the letters on the back, were placed on one side, in order to determine the amount of sulphur originally present in the paper, and also the amount of silver that had to be removed by the fixing agent.

The remainder of the paper was placed in a pint and a half of a twenty per cent. hypo bath; and, as this gave a little more than two ounces of hypo per sheet of paper, we consider we were on the safe side, as Captain Abney says that one ounce of hypo will fix three sheets of paper.

The hypo bath was tested before and after use, and was found to be slightly alkaline to litmus. The temperature was 22·4° C.

The prints were kept in the bath with constant changing for fifteen minutes. Two pieces (again from different sheets) were then taken and allowed to drain for five minutes, and the total sulphur and the remaining silver to be removed by washing determined.

The remaining pieces were then placed in a large vessel filled with water and into which water was constantly flowing. The temperature of the water was 13° C. During the first hour the pieces of paper in the water were constantly turned over in order to prevent them sticking.

Two pieces were removed at the end of 5, 10, 15, 25, 40, 60, 90, and 120 minutes, and 19 hours, and the amounts of silver and sulphur remaining in them determined.

The estimation of the sulphur and silver in the papers was carried out as follows:—In each case the two pieces of paper were allowed to drain for five minutes, and then torn up into small pieces and placed in a large beaker, with a mixture of 100 c.c. of nitric acid and 200 c.c. of strong hydrochloric acid (free from sulphur), covered with a dark glass, and heated on a sand bath till the paper was completely destroyed. The solution was then taken down to dryness, and 250 c.c. of pure distilled water and three drops of hydrochloric acid added, and the whole heated to boiling, allowed to cool and filtered, and the filter paper and beaker washed with boiling water. The filtrate was heated to boiling, and chloride of barium added, which precipitated all the sulphate present as barium sulphate. This was then collected on a filter, dried, and weighed in the usual way, and from this the amount of sulphur present in the paper calculated.

The chloride of silver on the filter was then dissolved out with ammonia, and precipitated by means of nitric acid, filtered off and treated in the usual manner.

The figures obtained are as follows:—

1.	Weight of sulphur	in original paper	·0050	grammes.
2.	„	in water adhering to paper………	·000032	„
3.	„	in paper fixed but not washed …	·2243	„
4.	„	after 5 mts. washing	·0063	„
5.	„	10 „	·0045	„
6.	„	15 „	·0048	„
7.	„	25 „	·0044	„
8.	„	40 „	·0043	„
9.	„	60 „	·0046	„
10.	„	90 „	·0047	„
11.	„	120 „	·0045	„
12.	„	19 hours „	·0047	„

The amount of sulphur in original paper has been subtracted from results 4 to 12 inclusive.

1.	Weight of silver	in paper unfixed……	·0734	grammes.
2.	„	fixed but not washed	·0086	„
3.	„	after 5 mts. washing	·0051	„
4.	„	10 „	·0035	„
5.	„	15 „	·0037	„
6.	„	25 „	·0037	„
7.	„	40 „	·0033	„
8.	„	60 „	·0036	„
9.	„	90 „	·0038	„
10.	„	120 „	·0040	„
11.	„	19 hours „	·0039	„

From these figures it will be seen that after five minutes' washing 97·2 per cent. of the sulphur originally present has been removed, after ten minutes 98 per cent., and that, however long-continued the washing, no more of the sulphur can be eliminated. Turning to the silver, we find that as the paper comes from the fixing bath it has lost 88·3 per cent. of its silver; after washing for five minutes, 93·1 per cent.; and, after ten minutes, 95·3 per cent. After ten minutes' washing the amounts of silver and sulphur remain constant.

It is evident from these figures that the permanency of a print does not depend so much on the washing it receives as on its thorough fixing; and we are strongly of opinion that the best way of removing all the silver is not by using two baths of hypo in succession, but by washing for about five minutes after the first bath, and then soaking in a second fresh bath of hypo.

In what form the silver occurs in the paper, whether as the insoluble $AgNaS_2O_3$, or the soluble $Ag_2Na_4 3S_2O_3$, held in a sort of "loose combination" with the films of the paper, we are unable to state. However, the fact remains that, after a more thorough washing and fixing than prints generally get, ·246 of a grain of silver remains in each 22 by 17 in. sheet of paper; and this, which is probably in the form of hyposulphite in the presence of light and organic matter, is reduced to silver sulphide, and will easily account for the yellowing of the whites of prints after a time.

We had hoped to determine the silver and sulphur in gelatino-chloride paper, and the silver in paper that has been treated to several baths of different composition; but, owing to the length of time required to carry out these experiments, we have been obliged to defer the investigation of those points for a future occasion.—*London and Provincial Photographic Association.*

LATITUDE IN EXPOSURE AND SPEED OF PLATES.*

BY F. HURTER, PH.D., AND V. C. DRIFFIELD.

It is generally assumed, because our researches have led us to pronounce exposure, and not development, to be the determining factor in photography, that, therefore, the production of similar prints from a series of negatives which have received widely varying exposures, and have been submitted to widely different treatment in development, totally upsets the whole of our conclusions.

Our attention has been called, from time to time, to such series of negatives; and in all the instances which have come to our notice, there has been no difficulty whatever in arranging the negatives in the order of their exposures; nor has it been much more difficult, by mere inspection, to so arrange the prints. If, however, such negatives be measured, and their density ratios ascertained, the order of the negatives, with respect to duration of exposure, is readily decided beyond all possibility of error.

As an instance of such a series of negatives, we give our measurements of four plates sent to us, two years ago, by a gentleman in Ireland, as an illustration of the latitude in exposure obtained by appropriate treatment during the operation of development. The subject was the same in all four plates, and consisted of a field bordered by trees. In the middle distance was a grey house, one side of which was illuminated by the diffuse light of the sky, and the other side by the sun. We measured the densities of the sky, the two sides of the house, the most transparent shadows in the trees, and a spot on the grass. In order to ensure the measurement of precisely the same spots in all four plates, masks with circular openings were fixed on each negative, so that the circles coincided when the subjects coincided. The four plates respectively received exposures of 1, 10, 30, and 60 seconds, and the resulting negatives yielded prints differing so little in quality, that they were deemed to have completely demolished our contentions. The following table gives the results of the measurements:—

Exposures.	Densities.			
	1″	10″	30″	60″
Darkest shadow in trees ..	·378	·553	·973	1·028
House (shadow side)	·833	·750	1·371	1·315
Grass	·930	1·005	1·706	1·581
House (sunlit side)	1·721	1·571	2·121	1·921
Sky	2 598	2·236	2·578	2·308

A glance at the densities of these negatives, particularly those indicating the extreme range (darkest shadow and sky), shows how widely they differ from each other; whilst a glance at the negatives themselves surprises one, by revealing the inability of the eye to readily appreciate these differences. The eye is still less capable of appreciating the great alteration in the density ratios given in the next table.

Exposures.	Density Ratios.			
	1″	10″	30″	60″
Darkest shadow in trees ..	1	1	1	1
House (shadow side)	2·2	1·35	1·40	1·28
Grass	2·46	1·81	1·75	1·53
House (sunlit side)	4·55	2·84	2·17	1·86
Sky	6·87	4·04	2·65	·24

These ratios decrease with increased exposure in perfect accordance with all our experiments. The negatives are very different indeed in this respect, and fully bear out our contention that the density ratios are a function of the exposure, and not of modification in development. We have no hesitation in asserting that such negatives may always be arranged in the order of their exposures by anyone acquainted with the subject. In printing quality, as regards time, these negatives also differ considerably.

It is clear, therefore, that these negatives do not illustrate in a striking manner what they were intended to illustrate—namely, the great latitude in exposure. They do, however, illustrate another point—namely, the great latitude there is in the quality of prints acceptable to the eye, and the curious inability of the eye to judge numerical values of density differences. In this faulty perceptive power of the generality of eyes lies a great deal of the latitude of exposure.

Various authorities give wholly different limits for this latitude in exposures. Professor Burton has given it as 1 : 30, but states that he has succeeded with some plates with exposures ranging from 1 : 80. We, ourselves, stated in our original paper that the plates which we used in our experiments (Nos. 21 and 22) would have given good pictures of subjects with contrasts varying from 1 : 80, though the exposures had varied from 1 : 2; that is, the plates were capable of recording, *truly*, contrasts ranging from 1 : 160.

Latitude in exposure depends

(1) Upon the quality of the plate.
(2) Upon the range of contrasts in the subject.
(3) Upon the degree of truth with which the contrasts are to be presented in the positive print.

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* Read at the Photographic Convention.

The quality of the plate is the most important question. There are some plates which have no latitude of exposure at all, or which are, at any rate, incapable of rendering any range of contrasts in this subject with any degree of truth, whatever exposure may be given. There are other plates capable of recording, *truthfully*, a comparatively wide range of contrasts, though exposures may vary from 1 : 5 or 1 : 6, and, if truthfulness of the intermediate tones be not absolutely demanded, such plates are capable of yielding useful negatives within such ranges as 1 : 20 or 1 : 30.

These different qualities of photographic plates are best represented graphically by the curve which we have termed the "characteristic curve" of the plate. The method of obtaining this curve will be presently described. Diagram No. 1 presents two characteristic curves of two well-known brands of plates which we will call A and B. We at once perceive a characteristic difference between these two plates. While the curve belonging to plate A is nearly straight from exposure 0·625 cms. to exposure 80 cms., plate B yields a curve which has hardly any straight part in it. Now, we have shown that if a plate must truly represent the contrasts of the subject, it can only do so if it possesses a perfectly straight portion within its characteristic curve. The longer this straight part is, the greater is the latitude of exposure for that plate.

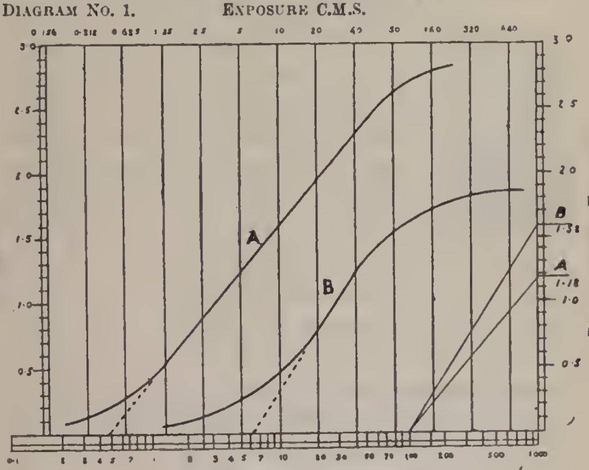
Plate A would represent a subject with contrasts varying from 1 : 20 with a high degree of truth, though the exposures varied from 0·625 : 4, or from 1 : 6. If several exposures were made upon several plates, the exposures ranging from 1 : 6, they would yield negatives of very different appearance, giving, however, identical prints, though the negatives were all simultaneously developed in the same dish for the same length of time. But, though all these negatives yielded identical prints, the professional photographer would discard them all but one, which to him, at all events, would be the only really good negative. *There is one exposure, and only one, which yields a true representation with minimum density.*

Plate B, on the other hand, would never give a correct representation of any subject. Such plates could not be sold or used if the eye were capable of readily detecting photographic untruths in prints. It is owing to this defect that such a plate can be used at all. But the unsatisfactory nature of the plate, as revealed by the characteristic curve, makes itself evident in practice by the very limited range of exposures which will yield satisfactory negatives. With such plates Professor Burton would have tried his art of altering density ratios in vain.

Next in importance to the quality of the plate is the question of range of light intensities which have to be recorded truly. Plate A is capable of representing light intensities lying between 1 and 70. If intensities had to be photographed embracing a greater limit than 1 : 70, it could only be done by sacrificing truth or proportionality to truth altogether. In the case of plate B, the limit would lie between 1 and 2. The question arises, What are the usual variations in light intensities which have to be considered in photographic practice? Many photographers appear to have highly exaggerated ideas upon this subject. We do not exactly know what Professor Burton's opinion is, but it would appear, from his remarks, that the power of altering density ratios, by variations in the developers, can only be exercised in the case of plates which have received light intensities varying from one to, at least, several hundred. From this we are led to assume that he supposed that the two prints he has recently published represent light intensities varying from one to, at least, several hundred.

Now, it is an easy matter to ascertain the limits of light intensities, which have to be dealt with in any given subject; and the following is the outline of the method we adopt in such an investigation. We cut a plate into two parts; upon one part we make a series of exposures to the standard candles, so as to determine the characteristic curve. The other part of the plate is exposed in the camera to the object of which it is desired to ascertain the range of light intensities. We give such an exposure as will produce a correct negative, but it is not necessary to hit this very accurately. The two parts of the plate are then developed together for the same length of time, and with the same developer; and the highest and lowest densities of the negative, and such others as are of interest, are measured; as are also the densities resulting from the candle exposures. It will be evident that this graded plate, produced by exposure to the candle, serves as the scale wherewith to measure the light intensities actually at work in the camera, and which produced the densities of the negative. For such experiments it is, of course, desirable to select subjects which present sufficient areas of uniform density in the negative. A useful subject, because it comprises the entire range of tone which a paper print admits of rendering truly, is an ordinary folding screen, upon each of two folds of which are fixed a sheet of white cardboard, and a sheet of matt black paper. The screen is so placed that one fold is illuminated by direct sunlight, and the other by the diffuse light of the sky; and so that the sky itself is included in the picture. This subject gives us five densities on the resulting negative, namely :—

DIAGRAM NO. 1.



Sky.
White, illuminated by the sun.
White, " " diffuse light.
Black, " " the sun.
Black, " " diffuse light.

(*To be continued.*)

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The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, AUGUST 18, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
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COLLODION v. GELATINE.

PHOTOGRAPHERS who are old enough to remember that period when certain enthusiasts were singing the praises of gelatine, while the profession generally held aloof from it, will recognise the title of this article as an old friend. We have only to turn back to the year books and almanacs of that day to see how often it was used by the Conservatives and Radicals of the photographic world. Our excuse for harping upon such an old theme is a valid one, for we have been favoured by the Birmingham Dry Collodion Plate and Film Company (Limited) with sample packets of their plates, which have at last been placed upon the market. We say "at last," because it was stated no less than three years ago, at the Birmingham meeting of the Photographic Convention, that the problem of manufacturing dry collodion films which should compete with gelatine in the matter of speed had at last been solved by the veteran worker, Dr. Hill Norris, and would shortly be obtainable.

Gelatine plates did not quickly commend themselves to the photographic profession, and their wonderful rapidity had to be almost forced upon notice before they finally adopted them to the exclusion of collodion. But there were not a few, and we fancy many still remain, who sighed for certain qualities in the collodion wet plate which gelatine failed to give them; and in this way the term "wet-plate quality," as applied to gelatine plates, became part of the photographic vocabulary. Whether these retrospective longings were justified or not, we will not stop to inquire; but it is fair to assume that if a collodion plate could be manufactured which combined the quickness of gelatine with the clear shadows, dense highlights, quick drying qualities and other advantages of collodion, many would be disposed to welcome them.

It was Dr. Hill Norris who produced the first commercial dry plate in 1856, and now, under the auspices of the Birmingham Company, he once more places before the public "a plate which"—according to the prospectus we have received—"while it possesses the extreme sensitiveness of gelatine, has, in addition, all the charming attributes and facilities of collodion." In the "Instructions for Use," we have the further information that "the exposure required is about the same as that of the best gelatine plates on the market."

The dry collodion plates are supplied under three categories—"Instantaneous" (red label); "Medium" (yellow label); and "Ordinary" (green label). The first-named we cannot say anything about, as the packets sent to us were of the "Medium" and "Ordinary" kinds only. We subjected the "Medium" variety to trial, and will now state the results. As a first experiment, we exposed a plate on a well-lit figure subject in the open air, and, bearing in mind that the directions challenged a comparison in speed with "the best gelatine plates on the market," we exposed as for gelatine—that is to say, with an R.R. Dallmeyer lens with stop *f* 16 we gave half a second, which we judged more than ample for the subject before us, including as it did a figure backed by a house, with a glimpse of sky and sea at one side. The plate was developed with pyro and soda, freshly made up according to the directions sent out by the company, and it was hopelessly under-exposed. Another exposure was given of the same subject under exactly the same conditions, but lasting two whole seconds, and a printable negative was the result, but a negative which would have been far better if the exposure had been still farther increased.

In the next trial we decided to try against the collodion plate a gelatine one, of a well-known make (labelled "Ordinary"), and in order that both plates should receive the same exposure we cut the two plates down the centre, and placed half of each kind in juxtaposition in the two sides of a double dark slide. We turned the camera towards a sun-lit house-front, half brick and half stucco, with many windows, screened by venetian blinds. In short, a well-lit, flat, subject, with plenty of detail, and one admirably adapted to the purpose we had in view. The first exposure was one second, with *f*/32, and the second four seconds, with *f*/64. The two bisected plates were then put in a dish and developed together, with the same result as before. The collodion plates bore but ghostly images, while the gelatine ones were fully exposed, but over-developed in the effort to give their collodion neighbours serviceable opacity.

It is possible, of course, that through an error of the packers of the plates a slow variety may have reached us under another label; but excluding this supposition, we have no hesitation in saying that the dry collodion Medium plate sent out by the Birmingham Company, and developed by one of their own formulæ, is far behind an "Ordinary" gelatine plate in sensitiveness. We preferred the practical methods above referred to to comparative exposures by means of the sensitometer, as being in every way more satisfactory.

It is only fair to state that the plates, except in the direction indicated, appear to possess many good qualities. There is no sign of slipping of the film; the developer can be applied direct without any previous application of spirit; there is no halation, and the plates are isochromatic. There should be a wide application for them in the production of negatives for process work, and for transparencies of all descriptions. But if they are all of the same rapidity as those we tried, they cannot compete with gelatine for common use.

GLYCIN AS A DEVELOPER FOR LANTERN PICTURES.

We have recently been experimenting with some of the new developing agents for transparency work, and the following notes with regard to glycin may be of interest to our readers. Our attention was drawn to glycin as a possibly useful developer for lantern pictures, because in reports concerning it we had read that it would give images absolutely free from fog—and this we certainly found to be the case, although we rang the changes considerably in the matter of exposure.

The formula which we finally adopted was as follows:—

Glycin	60 grs.
Potass. carb.	250 „
Potass. bromide	10 „
Water (distilled) to	10 oz.

The solution, we fancy, is not so energetic when first mixed as it is an hour or two later, and it keeps well if the bottle is full, but if an air space is left above the surface of the liquid, signs of oxidation quickly become apparent. Probably the best way to keep the developer in working order would be to employ a bottle with an arrangement for drawing off the liquid from below, while the surface has a protecting layer of oil. Such a bottle was devised years ago, when the ferrous-oxalate one-solution developer was first introduced.

As a result of many trials we have come to the conclusion that glycin—unless, possibly, it behaves differently in association with other salts—is not a serviceable *all-round* developer for lantern pictures But, at the same time, it is a most valuable aid for obtaining clear pictures from negatives of a certain type. If the negative be even slightly fogged in the shadows—as the great majority of negatives are—the veil seems to offer an unwonted obstruction when this developer is used, and it is difficult to get those full tones which are so necessary in a good lantern picture. In the case of veiled distances the same objection applies—the foreground printing strongly, while all beyond is often invisible in the lantern pictures.

With a thin and clear-shadowed negative, on the other hand, it is different, for glycin will give with such a negative an admirable transparency on a gelatine plate. It is somewhat slow in action, and extra time must be allowed for the developer to act after the operation seems to be complete, or the worker will be disappointed with a too thin image when the plate comes from the fixing bath. The value of glycin will therefore be most felt by the lantern-slide producer if he sets aside his thin and ghostly negatives for treatment by it, leaving the normal and denser ones to yield up their images to the promptings of hydroquinone or pyro. With a suitable negative glycin gives a clear and beautifully soft picture, having a pleasing warm black tone.

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Messrs. Morgan & Kidd.—The *employés* of the well-known Richmond firm held their annual holiday on Saturday last, on which day the works were closed. Assembling at an early hour at Teddington Lock, they embarked on the *Windsor Castle*, the largest steam-launch on the Thames, and proceeded to Hampton. Here they were the guests of Mr. and Mrs. Kidd at their charming residence, "Castlemaine," dinner being served in a marquee which was erected for the purpose in the grounds. After dinner many toasts were given and replied to, the most popular being that of the host and hostess. The launch and its happy crew subsequently steamed to Penton Hook, returning to Teddington after dark. The day's outing was pronounced by everyone to be an unqualified success.

PHOTOGRAPHY AT SINGAPORE.

THE Amateur Photographic Society's Exhibition, opened yesterday (July 7th) in the S. V. A. Drill Hall, was (says the *Singapore Free Press*) from every point of view a conspicuous success, and, socially considered, the event attracted even more attention than in former years, the hall, which is in every way well adapted for the purposes of the Society, presenting quite a crowded appearance as the afternoon wore on. The number of exhibits was unusually large, reaching nearly 450, and, from an outside as well as from a technical point of view, they were as interesting as they were numerous.

His Excellency the Governor and Lady Clementi Smith were in attendance during the afternoon, and expressed themselves as well satisfied with what they had seen. Sir Charles Warren also visited the show.

The Exhibition is a decided improvement on that of last year. In all twenty-five members sent in specimens of their work, to the number of over four hundred, and the average is distinctly higher than at any previous exhibition. Poor pictures, both from an artistic and a technical point of view, are, of course, to be found, for even in an amateur the love of the art is bounded, in one case by the time which can be devoted to it, in another by lack of expensive apparatus or experience how to use it, in a third by a desire to obtain results too soon. It would not be difficult to select and comment on photographs that show in their composition a lack of the first canons of art; that are flat, uninteresting, and ugly pictures, with inartistic groups, blurred edges, stains, bad focussing, hasty washing, and other faults of technique. Neither would it be difficult to do the same from among four hundred pictures taken by professionals. Of this we are sure, that the best work of the members of the Singapore Amateur Photographic Society is fit to stand beside the best work in any exhibition at home.

Interest naturally centres in the pictures sent in for competition. The judges must have had a difficult task in coming to a decision as to the respective merits of the photographs submitted to them, and it will be admitted that, bound as they are by the conditions laid down, they have faithfully and conscientiously done their work.

The gold medal for the best picture in the Exhibition is awarded to Mr. W. N. Dow, for a composite picture "Penang, Daybreak and Noon."

The silver medal, for the second best picture, is awarded to Lieut. Haig for a view of "The Odourless River," near Kim Seng Bridge.

Other pictures placed in the same class are Mr. A. L. Donaldson's "Drawing-room at Government House," a a perfect interior.

Mr. Zimmer's "Spring," a lady standing within a leafy bower, is also a beautiful picture, one of the most artistic in the Exhibition.

The difficulty of placing lantern slides prevented much of the work of the members being exhibited. A good deal of time has lately been spent in this direction, and many who have been privileged to go to the rooms of the Society for an evening's lantern work can testify to much success in this direction. There will be nothing but satisfaction felt that the President, Mr. H. M. Simons, and the hard-working Honorary Secretary, Mr. E. J. Robertson, divide the honours in this class.

Class E.—Best set of three enlargements of any subjects.

In this class four competitors entered, but their work was not of sufficient merit to justify the judges in making an award.

The enlargements sent for competition were somewhat disappointing. The originals in many cases showed promise, but the enlargements did not fulfil that promise. And some of them, particularly of the last race meeting, were not by any means of the high standard shown in other classes of work.

An effective group of cameras and apparatus occupied the top of the room, and the whole of the arrangements were made with every regard for the comfort and pleasure of visitors.

* * *

THE CAMERA IN CALIFORNIA.

AMATEUR photography in far-off California seems to be in a very active state, as the following extracts from the *San Francisco Chronicle* will show. This newspaper comprises sixteen large pages with many illustrations, and the article which we here quote from, covered, with many reproductions of snap-shots, an entire page. These illustrations are of various subjects, but they are translated into line drawings to meet the needs of quick printing.

The season for amateur photographers has opened in all its glory. Most people who see the little black boxes in every part of the State, and hear the click of the snap-shot in all seasons and at all hours, appear to think that the amateurs make the entire year their season, but now it is at its height and will remain so for months to come. The amateur photographer is of both sexes, and both are indefatigable in the particular field which absorbs their attention.

Now is the time when one sees them on the streets, out on the bay, in the woods and in the mountains, combining with the varied pleasures of an outing the added one of opportunities for photography. Irrepressible in their search for all that is picturesque or interesting, they are everywhere. When one realises that there are fully 5,000 young men and women in this State, fully half of whom are in the city, all armed with the weapon of sun and shade, some idea of what is going on may be gathered.

These picture-seekers are seen on the streets of the town taking snap-shots at whatever is striking or interesting. Now they are bribing some dirty-faced youngster with a dime, placing him in some ridiculous attitude and taking a "shot" at him, greatly to his amusement and very much to their satisfaction. Again they are out in the old cemeteries taking pictures of historic spots. They are always on the look-out for scenes which are picturesque or for incidents which show some phase of life, no matter what.

The Cliff House and Park, Mission Dolores, sights and scenes upon the streets, showing the city in its best light, and sometimes in its worst, have been taken a thousand times, but every season they are taken again, and something new is offered to those who are interested. The time was when the subject, not the technique, was first in the amateur's mind, but that was long ago, and when he now closes himself in his dark-room it is for work which often excels that of the professional.

While the men with camera are busy in the day they are by no means idle at night. When darkness has come one may see them prowling about Chinatown, in and out of dark alleys, down into the back cellars and up on the dilapidated, crowded roofs, braving the dangers of narrow corridors and their hidden hordes of murderous Mongols. The nauseating odours which rise in a confusion of frightful smells have no power to check them.

They want snap-shots of everything there, and before many months are over the ladies and gentlemen who have the honour to belong to the Camera Club of London are looking at the Chinatown of San Francisco as it is. Chinatown possesses a strange fascination for the amateur and his camera. He has seen every feature of the loathsome place time and again, but he wants to have it as it looks under the glare of his flashlight.

He wants to thrust open the door of a crowded, ill-smelling, opium-smoked den, and scare the copper-coloured inmates into realistic visions of the hereafter. He wants to obtain a picture no one else possesses. His wish is to catch the Celestials as they live, as they eat, work, and sleep, and there are collections of such pictures in this city which more fully represent the place than any description ever given. While there are hundreds of pictures, more are always being taken, and Chinatown is a veritable mine for snap-shots.

The city, with its lights and shadows, is but one phase of the activity of local and State amateurs. The harbour, with its fixed points of interest and floating panorama of incident and accident, constitutes a never-ending province for beginners and veterans in amateur work. Marine views are comparatively easy to take, and the results are always satisfactory to those who seek them.

While the snap-shot man is making his presence felt in the shaded bowers of the park, where two are company and three make a crowd, his more ambitious and much more competent associate, who prefers to do the rest himself, is posing his Sunday girl in all sorts of entrancing attitudes, and is busy taking her photograph.

He has done it before, but he has dozens of pictures of every youngster in his neighbourhood, and he will take them again. He has in his prized collection all his four-footed friends in every pose suggested to a fancy which is allowed free play. He has certain objects of admiration, and that is why he has his best girl in scores of pictures. When he is out on the bay it is to catch pretty nooks on the islands, scenes along the wharves, incidents in the big shipyards, and passing sights upon the water as the tiny craft sail by.

Now and then photographic parties of ladies and gentlemen are organised for outings to places near the city. Sometimes it is out among the hills of Marin county for anything which suggests itself as worthy of preservation. Again it is a journey down the coast among the beautiful scenes which flash into view at almost every step. There is not a spot within twenty-five miles of this city which has not been photographed by the amateurs of this city, and it is safe to say that the army of amateurs in the State have not neglected an opportunity within reach.

The bicyclist who has not his camera strapped to his wheel when he starts on an outing has forgotten something he wished to take. The pleasure-seeker and picnicker who is without a chance to take a snap-shot feels that part of the day's pleasure has been lost. It is so with almost every sport, not alone where ladies and gentlemen participate, but where either hold the field. The tennis girl nowadays without her camera is almost as badly off as without her racquet.

In the army of amateurs there is not one who is inspired by other motives than that of pleasure. By circumstances most of them are not affiliated in any society having for its purpose an exclusive consideration of photography. They go about when and where they please, and learn as the fancy strikes them. Others by preference are members of no organisation; but there are about 200 ladies and gentlemen in this city and State who are organised into one of the most powerful organisations of its kind in the United States and a pioneer in many lines of amateur work.

To its efforts more than to anything else, perhaps, is due the general popularity of amateur photography on the Pacific coast, and particularly in this city. Its inception, growth, and present success represent and typify the efforts of everybody who is interested here in the pastime so generally followed. Its history marks the beginning of amateur work on the coast. It is known as the California Camera Club, and it owes its existence to an incident strikingly distinctive of the city and State. George W. Reed was and is an amateur of recognised prominence in the city. While a member of the Pacific Coast Amateur Photographic Association he took a picture of the Golden Gate and sold it. In selling it he violated a rule of the Association, and a great row resulted. In the end Reed and T. P. Andrews seceded and organised the more popular and powerful California Camera Club.

With the secession of Reed and Andrews came the present system, dignified by devotees into the importance of an epoch. The new club was organised on March 18th, 1890, and incorporated the following month. That it was popular was evident from the fact that fifty-four ladies and gentlemen signed the charter-roll. Affairs were not as encouraging at the beginning as they might have been for the young society; but its members hustled about, and before a year was over the organisation was well on its feet.

In the beginning the new society was without a dollar in its treasury. It had no permanent rooms in which to meet. It had no property and not a single appliance. Now it has almost 200 active, associate, and honorary members, with 250 subscribing members on the roll. It has excellently furnished apartments in the Academy of Sciences' building. It has every photographic magazine published in English. It has all the modern appliances of photography, and owns something over 3,000 dols. worth of property.

One of the most important and one enjoyed by thousands of local people is the system of giving monthly exhibitions, at which not only the work of members is shown, but the best efforts of amateurs in the United States and England are thrown on the screen. By a plan of interchange, sets of slides made by amateurs are sent across the continent, to England, and to the Antipodes.

By an arrangement made with the American Lantern Slide Interchange, composed of twenty-one clubs, and with the American League of Amateur Photographers, including fifteen clubs, and among them the London Society, sets are always available. Not satisfied with the advantages already within its control, the California Camera Club is among those striving to establish an interchange with the amateur clubs of Germany, France, and Holland, thus enabling it to exhibit the best work of the amateurs of Continental Europe.

In summer the club gives an outing every month, and about every two months in winter. Occasionally the club gives what it is pleased to call a "hyjounckin," or "high jinks," where all that is fantastic in photography holds sway. The ludicrous and comical form the basis of the night's entertainment, and each member strives for efforts original and unique. Some very curious freaks have been the result.

When the camera craze began on the coast everybody was interested in whatever presented itself. The fields of the artistic had been unexplored, and all were eager to photograph no matter what. As a matter of course the first work done was not of the best. Ladies and gentlemen were absorbed in the diversion held out by the "snap-shot," and the technique was something in which they were not primarily interested. But, as improvements in appliances came, and as each amateur became more interested in his or her work, specialisation followed and the best results were obtained.

Each amateur confined his attention to some special line of work, and many of them have no rivals to-day in their particular province.

The amateurs are very easily divided into two great groups. In the first are those who take pictures solely for the amusement they receive. As photographers their activity is independent of their regular profession in business. In the second group are those gentlemen who use photography as an adjunct often necessary and always helpful to their profession. Among them are Professors Barnard and Burnham. They have demonstrated that what neither the eye nor the telescope can see is revealed by the camera, and they have utilised the fact with extraordinary results. Professor Davidson is also an amateur photographer who uses his camera in connection with much of his astronomical work. He is clever in the new field and has a noteworthy collection.

While astronomers have found photography so useful, W. H. Lowden is an amateur, strictly speaking, who has done the most remarkable work of any man on the coast. His clever work in photographing the eclipse of 1889 at Cloverdale made him a reputation all over the country. The results he then obtained have since been surpassed, but do not in any way detract from his success. In other lines Lowden has won local celebrity, and is esteemed to be the best all-round amateur here.

The collection of lantern slides forms one of the most interesting developments in amateur work. Ladies and gentlemen have become expert in handling the stereopticon, and their cleverness is a source of continuous entertainment for their friends. Something in the way of stereopticon exhibitions is happening all the time either in public places or private homes. Timothy Hopkins is one of the most enthusiastic amateurs who give their energies in that direction to the collection of lantern slides. He has one of the best on the coast, and is constantly making additions to it. His visit to Japan was productive of a great deal in that regard, for in the realm of the Mikado they make slides cheaply and make them well. Dr. David Starr Jordan, of the Stamford University, is also an amateur whose hobby is the collection of stereopticon views which are almost exclusively his own work.

Freak photography possesses a fascination for many. Somehow men like to see pictures of their fellows carrying their heads under their arms or in their hands. They like to see men without legs, and a jolly good time between the skeleton figure of death and an old *roué* has charms which overcome any difficulties. Among those who have succeeded in opening ghastly effects in that field is Professor T. H. d'Estrella, of the Berkeley Institute for the Deaf, Dumb, and Blind. H. C. Owens is also continually on the hunt for freaks, and his collection of the horrible shows to what advantage. Phil Maunder plays second to no one in that field, and his work is hair-raising in his suggestions of what might be were men not put together as they are.

City life, with its multitude of sights and scenes, offers opportunities which few amateur photographers have allowed to pass them. Many have made success, but F. H. McConnell probably has achieved the best He is always prowling about, and to good purpose. Like his associate with the flashlight, he is irrepressible. With the flashlight T. P. Andrews has done more work than half a dozen others. He has the best collection of Chinatown views in existence, and he made it with no small risk to himself and to those who went with him to watch. For about two years he was oftener in Chinatown than anywhere else. W. B. Lee is also an adept with the flashlight.

In the city, scenes of the grotesque and ridiculous form no small element of possible opportunity for the amateur photographer, and none have accepted them to better advantage than T. Schwerin. His friends think he has a picture of every interesting youngster who ever lived in town, and every one of them has been bribed by the artful "snap-shot" man. Schwerin has youngsters of all sorts, sizes, and conditions in life. The dirtier and more good-natured the subject the more valuable he is, and the babies of the city seem to realise it when Schwerin comes along. E. L. Gifford is another who has taken children almost exclusively for his models. He has a horse, however, which he photographs at least once a week.

While city life has its attractions, the country has more for some. A. G. McFarland is always on the look-out for the idyllic and romantic, and his collection leaves no doubt that he has found it. George W. Reed and H. B. Hosmer lean toward the marine. James W. Duffy has a tendency that way, but camp life and portraits, with a marked preference for one, have engaged his attention. The indefatigable amateur with the hand-camera is represented by Charles A. Adams. H. C. Tibbitts makes periodical trips throughout the State, taking views everywhere, and then comes home to compare notes with McFarland.

While all of these amateurs are always doing something in amateur work, they are not by any means the only ones. The woods are full of them now; and, as the season progresses, one will hear from them.

PHOTOGRAPHERS' EFFORTS AT UNION.[*]

BY H. SNOWDEN WARD, EDITOR OF "THE PRACTICAL PHOTOGRAPHER."

WHEN first I was asked to read a paper before this Congress, I purposed to use the title "Union Among Photographers." A friend objected that if I took that title, and treated the subject truthfully, the paper would be as brief and to the same effect as a certain famous essay "On Snakes in Ireland," which consisted of three simple words, "There are none!" While this statement is too sweeping to be absolutely true, it contains the germs of truth; so, in deference to my friend's suggestion, I speak of photographers' *efforts* at union.

The subject is such a vast one that I cannot pretend to treat it exhaustively. I shall not trouble you with the reading of the whole, even of the particulars that I have been able to collect, and that are contained in the printed slips distributed about the hall. The subject is one that will be taken up, that *must* be taken up, by abler and more leisured writers than myself, and the present is merely a first contribution. It is also a bait thrown out to catch information, and I shall be indebted to anyone who will send me additional particulars, or correction of errors that occur in the present brief summary. Such particulars I will endeavour to have published in an English and an American photographic annual.

In order to keep the subject within limits that are at all manageable, I have confined myself almost entirely to professional efforts, and, with one exception, to organisations in the English-speaking world. The matter may well be divided under four heads :—

1. Brief historical notes.
2. Efforts now existing.
3. The ideal union.
4. Present possibilities.

The history of the subject is largely a history of failures. But from those very failures we can learn much that will be valuable if we of the present are true to our opportunities. In the history of the subject, both of success and failure, America plays a far more prominent part than the other sections of the English-speaking world, so I give her the first position. The earliest records are those of the *Daguerrean Societies*, national, State, and local, which flourished in the forties and fifties. They were professional bodies, and discussed manipulation, prices, &c., flourishing for a time. Gradually jealousy and dissension appeared among them, and before the daguerrotype was killed, the societies formed in its interests had killed themselves. I have obtained particulars of some forty-five unions or professional societies of which no trace appears now to exist, and place their names and brief particulars on record. They are arranged in the order of the earliest dates at which trace of them is found, although some of them were, no doubt, old before the time at which I have met with particulars. They embrace Canadian societies as well as those of the United States. Most of them are defunct, possibly some may feebly exist, and probably many have been merged into amateur societies. The Photographic Club of New York City, existed in 1845, before professionals and amateurs were separated. Date of dissolution not known. Photographic Section of the American Institute, 1859. The oldest now-existing society. Is now purely amateur, though originally largely professional. San Francisco Photographic Artists' Association, founded 1866, to remedy price-cutting, and flourished for a few years. Michigan State Photographic Association, founded in Detroit, 1866. German Photographic Society of New York City, founded 1867, a branch of the Photographic Society of Berlin. Last heard from in 1889. The Ferrotypers' Association of Philadelphia, 1868, was a strong and active though small society. Fell to pieces after 1879. Northern Ohio Photographic Association, active in 1879, when it attempted, and with fair success, to enforce Sunday closing of studios. Photographic Association of West Virginia, founded at Wheeling, West Virginia, 1869. No subsequent history. Toronto Photographic Association, founded 1869 (or early 1870). Fell to pieces at once through price-cutting by members. Boston Photographic Society, founded 1869. Languished till early in the seventies, and was then re-organised on a broader basis as the New England Photographic Association, which held several well attended meetings with much discussion, but little practical result. The Indianapolis Photographic Society, founded 1870. In 1872 became the Indiana State Association and flourished for a while. St. Louis Photographic Association, founded 1870. Pennsylvania Photographic Association, founded 1870 as a State association. Had about one hundred members, embracing all the best men, and for a while did good work. Central Ohio Photographic Association, 1870. Had no fees or meetings, but had a well-arranged scheme of mutual help by correspondence and the regular exchange of specimens of work. Brooklyn Photographic Artists' Association, 1872. Met regularly at various studios for a time. Photographic Association of Western Illinois, 1872. Had quarterly meetings. Photographers' Association of District of Columbia, founded, at Washington, 1872. Maryland Photographers' Association, Baltimore, Md., 1872. Buffalo Photographic Association,

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[*] A paper read at the World's Congress on Photography, at Chicago.

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founded 1873. Northern Michigan Photographic Association, founded 1874, and held meetings to draw up a constitution, but did little else. Photographic Artists' Society of the Pacific, San Francisco, 1875. Had some fifty members, but died early. Chicago Photographic Association and Photographic and Fine Art Institute of Chicago. Were active in 1881; founded some years before. No record since 1889. Chicago College of Photography, first session announced 1881. Apparently a good scheme, in theory, at any rate, for a college for training professional assistants. No record since 1881. Gayton A. Douglass, treasurer. Photographic Society of Nashville, Tenn., founded 1881. Photographic Stock Dealers' Association of America, founded at Cleveland, O., 1882, Rochester (N.Y) Photographic Association, founded 1883. Detroit (Mich.) Photographic Association, active in 1883. No later record. Northern Michigan Photographic Association, in existence in 1883. Photographers' Association of Syracuse (N.Y.), founded 1884. Photographic Association of Fort Wayne (Ind.), founded 1885. Photographic Merchants' Board of Trade, held its seventh meeting in February, 1885. No later record. The Secret Order of Scientific Photographers, founded in Minneapolis in 1885 and issued a printed constitution. Was intended to include all professional photographers, assistants, stock dealers and manufacturers in America. Last record, 1886. Jackson (Mich.) Photographers' Union, founded 1886. Association of Operative Photographers of New York City had an employment bureau and held business and social meetings. Formally dissolved in 1886 after a long and useful career. Cause of dissolution: Lack of interest. Pottsville (Pa.) Photographic Association, founded 1886. Texas Photographers' Association, founded 1887. Held one (or two ?) convention. No record since 1889. Kansas State Association of Photographers. Held a convention at Wichita (Kans.), 1888. No later record. Southern Tier of New York Photographic Association, founded 1888. Met at various towns. No record since 1890. Toledo (Ohio) Photographers' Association. Last record, 1890. Photographers' Association of Lancaster (Pa.), founded in 1891. Held one or two meetings. United Retouchers' Association, founded, St. Louis, 1892. Intended as a national union with local centres. No records. To this list I suppose I must add that ill-fated association which seemed to start under good auspices, but which turned out something worse than a failure, and which has done much to increase the distrust with which many photographers regard all efforts at union—the Photographers and Artists' Mutual Benefit Association. It is to be regretted that such a promising association was not worked on different lines; but I think it is more to be regretted that the large number of good and honest men who joined it had so little cohesion as to allow a valuable scheme to be wrecked by the treachery of one or two men.

(*To be continued.*)

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PROCEEDINGS OF SOCIETIES.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

A TECHNICAL meeting will be held on Tuesday, August 22nd, at 50, Great Russell Street. Subject, "Aluminium Flashlight," with a demonstration by Mr. BOLAS.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

Mr. T. BEDDINGTON in the Chair.

MR. J. J. BRIGINSHAW, in recognition of his former services to the Society, was elected an honorary member.

Mr. J. COLE showed a hand camera which was also available for use on a stand. A striking point in it was that the front was made to rise and fall to the extent of the size of the plate.

Mr. W. E. DEBENHAM had always asked for a high rising front, and was pleased to see it so thoroughly carried out.

Mr. P. EVERITT inquired whether there was a lateral shift for the lens as well as a rising front. This he considered the more essential of the two. Hand cameras were not often used for architectural subjects.

Mr. H. M. SMITH replied that architectural subjects were very commonly included in hand-camera pictures.

Mr. DEBENHAM said that, in order to render vertical lines as parallel, it was necessary with lofty subjects either to tilt the camera and swing the back, or to have a rising front, which was much better, as in the other case the plane of definition would not be on the plane of the plate. The reason why a rising front was more necessary than a side shift was that vertical lines were expected to be parallel, whereas the horizontal lines might converge as in a perspective drawing.

Question from the Box.—Would it not be desirable to occasionally have a *salon* evening on which members might show their pictures, and might not such evenings alternate with the lantern nights?

Considerable discussion ensued, and it was generally agreed that occasional exhibitions of the kind indicated would be useful, and a resolution to that effect was moved by Mr. H. M. SMITH, seconded by Mr. DEBENHAM, and carried *nem. con.*

Mr. SMITH showed a print on nikko paper, on which he invited criticism. He would like to know whether there was any real objection on the score of want of permanency to the sulphur toning used. Hardwick and Abney had stated that sulphide of silver was an exceedingly stable substance.

Mr. DEBENHAM objected to sulphur toning. Some years since he had made some experiments with silver reduced by heat from the tartrate in a cotton fabric. The silver was of a deep brown colour, and in some pieces he had changed the colour to a rich black by exposure to the fumes of sulphide of ammonium. Wherever there were fine lines on the fabric so treated they soon faded to a yellowish hue, like that of a faded photograph.

Mr. EVERITT said that Abney had stated that an image of sulphide of silver was most permanent.

Mr. EVERITT showed a negative with certain markings which he attributed to the use of sulphurous acid for preserving the pyro, as on changing the developer to one prepared with sulphite of soda, they no longer appeared.

Mr. HADDON said that the sulphurous acid, as such, did not come into contact with the plate at all, being converted into sulphite of soda or ammonia according to the alkali used for development. There was probably some other unnoted condition present.

Hackney Photographic Society.

Tuesday, August 8th, 1893, *at* 206, *Mare Street, Hackney.*— Mr. R. Beckett presiding.

Report read of August 5th excursion to Radlett.

Members' work shown from Messrs. Guest, Hensler, Pollard, and Selfe.

Question.—What is the best method of reduction of a negative over-intensified with bichloride of mercury and ammonia? *Reply.*—After ammonia or soda sulphite, refix the plate with hypo, and it will come out little denser than it was before intensification. After cyanide of silver, reduce with ferricyanide of potash and hypo; hypo alone makes little difference.—Mr. Hensler succeeded in removing veil from lantern slides with Farmer's Reducer.—Mr. Beckett said if a single unexposed plate is left for any considerable time in its own box, on exposing and developing often the paper mark becomes clearly visible.—Mr. Blake showed negatives of a *Lilium auratum* on Edwards's Iso. plates, one with a light yellow screen and the other without; althoguh 2½ times exposure was given to the former, yet it had green fog. Three to 4½ times was recommended.—Mr. Penny showed a negative veiled over, and asked whether it were chemical or light fog; it was restrained with 2 or 3 drops of 10 per cent. sol. br. pot. *Reply.*—¼ gr. to 4 oz. is the correct quantity. Too much soda sulphite was probably used. It is safer to start development with half quantity, and increase as necessary. *Question.*—Can alpha paper be developed with amidol and be toned afterwards. *Reply.*—Yes.

North Middlesex Photographic Society.

Ordinary Meeting August 14th, 1893.

This was a technical night, and the attendance was affected by the holiday season and also the tropical weather.

An interesting talk was held as to the use of amidol as a developer for bromide and alpha papers. Mr. Gregory had tried it and got good black tones with much shorter exposure than when using ferrous oxalate. He used the formula mentioned in *Photo Scraps* for July. Mr. Beadle had tried it too, and had succeeded also in getting good blacks with very little trouble, but could not get greys, which he rather wanted. Several other members related their experience, but the general opinion seemed to be that to keep amidol under control, fairly large quantities of bromide were necessary, and this so slowed the action that it became no faster in use than ferrous oxalate, and that after all the latter had not yet been ousted from premier position with regard to paper. One member had tried it with alpha, but found he could on development only get a green-brown tone, which was no good for after toning, a warm brown being necessary, but this he had not succeeded in getting.

Mr. Beadle showed a series of prints showing the result of partial reduction of his negatives, thus removing the effect of halation in interiors, or through trees, bringing out distance which was over-dense and did not print through, &c. The difference of before and after treatment was most marked. He described his method as follows:—A solution of hypo of ordinary strength had an addition to it of a little strong solution of ferricyanide of potassium, just enough to give it a yellow colour; a small piece of sponge is dipped into this and then squeezed fairly dry, and the part of the *dry* negative to be reduced gently touched or rubbed with the sponge until sufficiently reduced.

The next meeting is on the 28th inst., when the Sandell plate will be dealt with by Mr. Herbert Fry. Visitors are welcome.

South London Photographic Society.

August 9th.—Ordinary Meeting, held at Hanover Hall, Peckham.—The President (Mr. F. W. Edwards, Esq.) in the Chair.

The Secretary announced the postponement of the President's lecture, "Reminiscences of a Few Eminent Men," which was to take place on September 4th, and stated that a demonstration of the new developers, "Amidol, Metol, and Glycin," would be substituted on that occasion.

The names of two new members were proposed.

Mr. Maurice Howell (one of the Vice-Presidents of the Society) then gave a short lecture on "The Chemical Action of Intensification." He stated that intensification was resorted to when the negative was not what it should be, through errors of exposure, insufficient development, or several other causes. They, no doubt, all knew how to mercurially bleach the negative; but he proposed to enumerate several ways of turning the white preparation into a black one, and giving density to the picture. Ammonium sulphite was almost always used in the old days to intensify collodion pictures, but this process had the bad effect of darkening also the half-tones, and entirely blocking up the shadows. A solution of ammonia, or sulphite of soda, might be used; but the best of all was ferrous oxalate, because it reduced both the silver and the mercury to a metallic state, and it possessed the best keeping qualities. Ferrous oxalate restored the image, and it had another advantage, as the negative might be bleached and intensified over and over again, so as to increase the opacity of the negative, and without apparently injuring it in any way. The mercury chloride could be used again and again, until a very heavy deposit was obtained. He also referred to potassio-silver cyanide, ferridcyanide of uranium, and bromide of copper, the latter appearing to act as an admirable intensifier for lantern slides, but it did not act so well for negatives. They had their choice of all these processes, but he himself was in favour of ferrous oxalate, as he was of opinion that the deposit left on the surface was less likely to decompose when printing, especially when using albumenised paper. He used the ordinary formula for ferrous oxalate, taking one part each of Nos. 1 and 2, and adding one part water.

Rotherham Photographic Society.

Monthly Meeting, Tuesday, August 1st.—Dr. Baldwin, President, in the Chair.

Good attendance of members. The business included the competition arrangements for present year. It was agreed that there should be classes for excursion work, untouched negative prints, lantern slides, most artistic photo, and hand-camera views. It was announced that the room in the Rotherham Public Museum, placed at the disposal of the Society for exhibition purposes, had been opened. The work displayed, although somewhat hurriedly prepared, had been very favourably spoken of.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

14,677. JOHN RUDOLPH GOTZ, 433, Strand, London, "Improvements in, or relating to, Photographic Cameras."—*July* 31*st*, 1893.

14,839. HENRY REX COOK, 34, Southampton Buildings, Chancery Lane, London, "Improvements in, or connected with, Photographic Shutters, known as Blind Shutters."—*August* 2*nd*, 1893.

14,925. JOHN WILLIAM GORDON, The London Institution, Finsbury Circus, London, "Improvements in Photographic Cameras and other Optical Instruments."—*August* 4*th*, 1893.

14,927. EDWARD HOWARD PERCY HUMPHREYS, 8, Hyde Park Gate, London, "Improvements in Photographic Cameras."—*August* 4*th*, 1893.

15,056. ARCHIBALD THORNTON LIVIE, 76, Chancery Lane, London, "Improvements in the Construction of Photographic Cameras."—*August* 5*th*, 1893.

* * *

EXHIBITION AWARDS.—If ten bandy-legged men were to hold a race together, and one being a little better than the rest, won the race, would he be entitled to a medal as a racer? A similar question may be asked in the case of exhibitions held by the small societies, consisting of a number of poor workers. Those a little above the average get the reward and become medallists. What honour is attached to such a proceeding?—*Photo Times.*

MESSRS. E. & L. MACH have done a considerable amount of work in connection with the photography of flying bullets, air jets, and sound waves since their last publication on this subject. Some results gleaned from a series of about 1,500 negatives have been recently communicated to the Vienna Academy. Sharp images of Mannlicher rifle bullets were obtained of 3·5 cm. diameter. The disturbing electric contacts in the field were dispensed with, as it was found possible to close the spark circuit mechanically by means of the sound wave produced by the bullet itself. A large number of experiments were conducted with the interference refractometer invented by Ludwig Mach, and constructed in a complete form with the aid of the Academy. After some trials they succeeded in producing homogeneous plane-parallel glass plates large enough to obtain an interference field 8 cm. in diameter. If one part of this field is occupied by a projectile, an air jet, or a sound wave passing one of the interfering pencils, the interference bands, usually rectilinear, appear bent in such a manner as to indicate the change of density of air at any point. For the purpose of instantaneous illumination the electric spark was usually employed, but sometimes, especially in cases where a longer illumination was admissible, as in the photography of air jets, blue monochromatic sunlight was substituted.—*Nature.*

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

ETHOXO.—There is nothing better for a lantern screen support than bamboo canes of suitable thickness. Judging from the supplies in some of the London shops these appear to be just now rather a drug in the market; and they are proportionately cheap. For a twenty-foot screen the poles should be quite two inches in diameter, and should be joined by metal sockets and L pieces at the corners.

GLYCIN.—A short article in our present issue deals fully with the matter to which you refer.

A. A.—Your query should be addressed to the makers of the camera. We believe that it is fitted with screw for attachment to a stand for time exposures, as all hand-cameras should be. Any way, the addition could be made with the greatest ease.

COMUS.—Shun the thing altogether. It is a fraud.

B. C.—The developer in question is about the best of any that has been put upon the market as a preparation ready for use, and if you have failed with it there must be some antagonistic element in the plates which you use. Try fuller exposure and restrain with bromide.

BUNBURY.—Get catalogues from both dealers, and use your discretion in the matter. They are both firms of reputation.

INTENSIFIER.—The best way of mixing up the mercury solution is to associate with it hydrochloric acid in the following proportions:—

Mercury	10 grains.
Acid	10 minims.
Water	1 ounce.

Of the many agents used for darkening we prefer silver cyanide. Always varnish an intensfied negative.

S. O. G.—The varnish is probably made with benzole, and that liquid should remove it, if spirit will not.

SPECTACLES.—You can get a celluloid focussing screen at Hinton's, Bedford Street, and possibly of other dealers.

P.—We prefer caustic potash to soda as the alkali for the lantern plates you name, in conjunction with hydrokinone. The right proportion is eight grains to the ounce of distilled water.

M. B.—There is a photographic room at the British Museum. and you can get permission to work there under certain conditions. Inquire at the Library.

* * *

A PRESERVATIVE FOR PHOTOGRAPHS.—Writing on this subject, Dr. H. W. Vogel says:—It is often found that mounted albumen prints fade after a short time. The cause may be in the prints, by insufficient fixing, or a weak fixing bath, or in the mounts. A prepared paste of iodine and starch has been put upon the market in Germany to prevent the fading of prints from such causes. Dr. Vogel asserts that this paste does all that is claimed for it and deserves the attention of photographers. He has proved, by experiment, that the iodine paste does not attack the photographs as has been stated. The paste keeps fresh quite a long time, and its use in large establishments is said to effect quite a saving.—*Wilson's Magazine.*

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1825. AUGUST 25, 1893.

LIBRARY

NOTES.

THERE are many complaints among Indian photographers as to the bad quality of the supplies sent to them by Indian dealers, and the *Journal of the Photographic Society of India*, in considering all sides of the question, remarks that "dealers can never be sure that such things as plates and paper, which cannot be opened and examined, are sent out from England fresh and in good condition; and, until all the makers adopt the plan of stamping every box or packet with the date of issue from their manufactories, this plea will always remain unanswerable."

THOSE who know anything about the photographic materials trade in England will repudiate the idea that any maker of plates or paper is so careless of his reputation as to issue goods of a faulty description. In the early days of plate-making spoiled batches were not unknown, but as a matter of best policy, if not from any higher motive, they were never issued to the public. But nowadays the manufacture is so well understood, is conducted with such perfect machinery, and under so many safeguards, that a faulty plate is an extremely rare thing. One meets with a broken one now and again, but this accident is due to the carrier rather than to the producer.

THE expression "fresh and in good condition" opens up the old question with regard to the period in a plate's life when it is in the best possible condition of efficiency. We have more than once expressed the opinion that a plate is at its best when not more than a few months old. One worker of our acquaintance, who confines himself almost exclusively to very rapid pictures, prefers a plate which has been kept until it is on the wane, and he asserts that then, just when age threatens chemical fog, it is in its most sensitive condition.

THIS assertion is partly corroborated by Max Wolf in an article contributed to Eder's *Jahrbuch*, who describes how various plates in his hands have been very slow when freshly made, but have improved by keeping for a time. This sensitiveness reaches a maximum which persists for a period, when the rapidity decreases. It has, therefore, become necessary in the astronomical work in which he is engaged to take into account the age of the plates employed before they are exposed on the stars.

WE gather from the article in question that plates have been tested for rapidity by determining the time necessary for obtaining fully-exposed negatives of certain constellations. But it is obvious that many accidents might interfere with results—notably the atmospheric conditions, and, more important still, the temperature of developing solutions. A series of careful experiments in this direction would give interesting and very useful results.

OF the innumerable photographs of lightning which have been taken, that recently secured by Dr. Kemphill, of Kingstown, is certainly the most curious. The negative was taken on the 9th inst., at eleven p.m., during a terrific storm. On one side it exhibits the ordinary streaked lightning, while darting along the surface of the sea are a number of fire-balls joined together by horizontal lines of light, and likened in the *Graphic*—in which paper the photograph is reproduced—to "the course of a ball of wool played with by a kitten."

THE same issue of the *Graphic* in which the above photograph appears contains an interesting article, entitled "The Naval Manœuvres and the Camera." This article represents a new and interesting departure in journalism, for it is the outcome of the appointment of a special photographer, commissioned by the *Graphic* to accompany one squadron. The photographs are of good quality, and are well reproduced as Meisenbach blocks.

The *Photographic Times*, commenting upon the number of persons who are colour-blind without being aware of their infirmity, quotes a curious case which recently occurred. At a meeting of a certain photographic society, the gentleman who acted as hon. sec. was shown some tickets which were to be used at a coming exhibition. These tickets were of three distinct tints, but the hon. sec., to the astonishment of all present, said: "I propose that we have these tickets of different colours;" and it was found impossible to convince him that they were already thus distinguished.

We are not at all sure that colour-blindness is altogether a disadvantage to a photographer. The tyro certainly may attribute most of his failures to giving too much value to the picture as seen on the focussing screen, because colours are so vividly depicted thereon. We all know that it requires a long apprenticeship before we learn not to see colour, and to see a thing in simple light and shade. An engraver, or an artist in black and white, would certainly work the better if colour were eliminated from his studies. On the other hand, the colour-blind man is deprived of much enjoyment in the want of appreciation of the varied tints and colour harmonies ever present in earth, sea, and sky.

Some say that excessive smoking induces colour-blindness, and the fact that the affection is almost confined to males may give some support to this view. But whatever be the cause it is certain that colour-blindness is much more prevalent than most of us think. From a recent Board of Trade return we learn that a large number of candidates for captains' and mates' certificates cannot distinguish colours. Out of 5,451 who were examined, 253 were rejected. As many as eighty described green as red, while several others thought it was pink, blue, or yellow. Seventeen were of opinion that pink cards were green, and twenty-seven classed drab as green. Among the rejected were men who had seen from twenty to thirty years', and more, service at sea.

We are glad to hear that a society is being formed to militate against the obtrusive advertisements of quack medicines, soap, &c., which have sprung up like evil fungi on the meadows bordering our railway lines, spoiling many a good landscape for photographer and everybody else. The same society would do well to turn their attention to our seaside resorts, where the sails of pleasure yachts are being made into advertisements for pills.

For advertisements of another and perfectly legitimate character photography is being increasingly employed. One very ingenious photographic advertisement is the picture of an immense pile of boxes which a consumer of a certain brand of tobacco is alleged to have sent as a thank-offering to the manufacturer thereof, with the confession that, in his intense appreciation of this form of the fragrant weed, he had emptied all those boxes in the course of twelve months.

In an interesting article in *La Nature*, M. A. Fraissinet gives some particulars concerning the work of the observers engaged on the photographic chart of the heavens. Some idea of the labour involved may be gathered when we say that it will take five or six years to produce the requisite number of negatives. The measurements of the various stars will absorb some twelve years, and the result of the gigantic task will appear in the shape of forty volumes of 1,000 pages, each page containing the position of fifty stars. The greater portion of the work will be undertaken in France, four observatories being devoted to this especial purpose. The arduous task of the measurements will be performed by Mdlle. Klumpke, assisted by four other ladies.

If the records of the Patents Office were searched, it would, we fancy, be found that inventions connected with photography took a high place, numerically speaking. The active minds of photographic inventors showed no signs in 1892 of settling down, but there are symptoms during the present year of a disposition to rest, if not to be thankful. The number of complete specifications sent in during 1892 and advertised as accepted in 1893 in the *Illustrated Official Journal* was 209. The number accepted of those applied for in 1893 was, up to the end of July, 27 only. Many others are, of course, under consideration, but it is scarcely likely the number will equal that of 1892. It is interesting to note that inventions relative to change-boxes head the list, and, after change-boxes, come instantaneous shutters.

Up to the present the whirling skirt of the serpentine dancer has not been satisfactorily photographed in motion. Anyone who sighs for a new world to conquer will find as many difficulties as he can desire in securing an adequate picture of the bewildering convolutions. An attempt was made in Paris to take a snapshot at Miss Loie Fuller, and the result has been published in the *Revue Encyclopédique*. The picture certainly gives one an admirable idea of one of Mr. W. T. Stead's "spooks," but few will recognise either Miss Fuller or her mazy and amazing dance.

PHOTOGRAPHERS' EFFORTS AT UNION.*

BY H. SNOWDEN WARD.

(*Concluded from page* 525.)

FROM the British side I have no such record, partly, no doubt, because I have unfortunately been able to devote but little time to investigation, but mainly because there have not been the numerous efforts. Unions and combinations have often been suggested, but seldom formed. In fact, there are only two of any importance that I can record as failures. The first of these was the Photographic Manufacturers' and Dealers' Association, founded in London, 1891. It arose out of an informal meeting of photographic advertisers called to take concerted action against one of the photographic magazines. It became a trade-protection society, employed a paid secretary, and opened and furnished an office in London. It made status inquiries, collected bad debts, and held meetings to settle questions of discount and prices. Through jealousy and mutual distrust it broke up within a year. The Photographic Artists' and Assistants' Union, founded in London, 1891, was intended as a trades union on the ordinary lines, to grant sick-pay, burial-money, and out-of-work grants to its members; to keep registers of assistants; to act as an employment bureau, and to generally work in the interests of the assistants. It held preliminary meetings and drew up a constitution, but only some thirty odd applications for membership were received, so the society never floated. From other parts of the English-speaking world I have records of only two spasmodic efforts. In 1891 the photographers of Chsist Church, New Zealand, formed a successful combination to stop price-cutting. And in the present year a number of the Australian photographers made common cause with other members of the public to expose and ruin the free portrait swindlers.

So far as I am aware, the efforts at union existing at the present time, and likely to be of use to professional photographers, are :—(1) The Photographers' Association of America, with the various State Associations, which I consider as its auxiliaries; (2) The Photographers' Association of Canada; (3) The National Association of Professional Photographers; (4) The Photographic Convention of the United Kingdom; (5) The Photographers' Benevolent Association; (6) The Affiliation of Photographic Societies, in connection with the Photographic Society of Great Britain; (7) The International Photographic Congress.

A very brief outline of the history and constitution of these societies may not be out of place. (1) The Photographers' Association of America (secretary, Adam Heimberger, New Albany, Ind.) may be said to be a continuation of the National Photographic Association, founded in Philadelphia in 1868, after a preliminary convention in New York in 1867. The National Photographic Association was a strong and useful association, which fought patent claims, circulated special formulæ, helped the needy, and took up such questions as apprenticeship, insurance, &c. At one time it had 1,500 members; it held conventions in various cities, and did much good until 1879, when it practically expired, and in 1880 was merged in the present Photographers' Association of America. The new association has not been conducted without great friction. Its membership at present is stated as 2,936, and the average attendance at its annual conventions (1885-91) has been 588. It has grand and noble objects, few of which have been attained or attempted, mainly (apparently) owing to unsatisfactory management in the past. Among the State associations which I consider as its auxiliaries are :—(1) The Photographers' Association of Ohio, founded 1891, and absorbing the Photographers' Association of North-Western Ohio, founded in 1890. It has some two hundred members, and appears to be flourishing. Holds an annual convention. Photographers' Association of Iowa, founded in 1890. Holds annual convention. Is not so successful as the above-named. Has about one hundred members. Photographers' Association of Nebraska, founded 1890. Holds annual conventions. It is not well supported. (2) The Photographers' Association of Canada, founded 1884. It holds annual conventions, and seems flourishing. (3) The National Association of Professional Photographers (secretary, D. J. O'Neil, 47, Charlotte Street, Birmingham, Eng.). Founded in 1891, in the interests of the profession. Holds meetings about once a quarter, in the principal English cities alternately. Has some one hundred and sixty members, including most of the best British professionals, but has not done much practical work, owing to the small extent to which it has been supported. (4) The Photographic Convention of the United Kingdom (hon. secretary, F. P. Cembrano, Cambridge Gardens, Richmond-on-Thames). Founded 1886. It holds an annual convention for reading of papers and discussion, exhibition and excursions. The "social element" has become predominant. Membership, two hundred and fifty to three hundred. (5) The Photographers' Benevolent Association (hon. secretary, H. Snowden Ward Memorial Hall, London, E.C.). Suggested by Mr. A. H. Wall in 1864, but not founded until a meeting of assistants was called in 1873, when a Photographers' Benefit Society was established. At a later date it became purely benevolent. It does considerable good in a quiet way, derives most of its funds from manufacturers and amateurs, and dispenses them entirely to professionals and assistants. It has been generally neglected by the profession. There is a fund of nearly £400 in hand, and it has the making of a valuable institution. (6) The Affiliation of Photographic Societies (secretary, R. Child Bayley, 50, Great Russell Street, London, W.). An affiliation started by the Photographic Society of Great Britain, and consisting of a number of amateur and mixed societies. It might prove a valuable factor in a comprehensive scheme of union. (7) The International Photographic Congress. Suggested by the jury of the Brussels Photographic Exhibition, 1885. Initiated in 1886, with the King of the Belgians as patron, but did not meet until 1889, when a congress was held in connection with the Paris Exhibition. A second congress was held in Brussels in 1891. On both occasions large congresses of the best-known photographers devoted several hours a day for several days to the careful discussion of various practical questions, and made recommendations as to standards, &c. Of the intrinsic value of their work there can be no doubt; but, to English-speaking people, it has been rendered practically useless because they have not been adequately represented, and because the Congress has no adequate means of conveying to them the results of its deliberations. These difficulties would be at once cleared away under a scheme of union that embraced federation with the Congress. These societies as they stand do not furnish the materials for the ideal union.

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* A paper read at the World's Congress on Photography, at Chicago.

And, in order that we may see what can be done towards attaining the ideal, it will be well for me to state what the ideal seems to me to be. In each country there should be—(1) A National Association, including, as sections or affiliated societies: (*a*) a manufacturers' and dealers' union; (*b*) a strictly professional union; (*c*) an assistants' union, on benefit society or trades union lines: and (*d*) state, county, or district associations, and, where possible, town associations, affiliated to the National Association and directly associated in its management. And, in addition to these, there should be an International Union, with a separate section for dealing with purely professional questions, but also including the fullest possible representation of amateur societies and workers, for combined conference on all subjects that are of interest to amateurs and professionals alike.

This brings us back to present possibilities, and to a consideration of what ought to be attempted forthwith for the realisation of the ideal. (1) In the United States, the increase of State and other local associations, and their affiliation with the Photographers' Association of America, should be encouraged as far as possible. The possibility of reviving or forming a Dealers' Association and an Assistants' Union, either independently of, or within the Photographers' Association of America, should be carefully considered. The formation of a benevolent or a provident fund, or both, should be taken in hand. (2) In Canada, the Photographers' Association of Canada should work on similar lines. (3) In Britain, the National Association of Professional Photographers should be immensely strengthened, and every effort made to increase the number of its local branches. It should consider the possibility of forming an assistants' branch, or of encouraging the formation of a separate Assistants' Union; and it should give what attention and assistance it can to the Benevolent Association, as to an institution which ought naturally, and is likely eventually to be under the control of the National Association. The effort made last year to co-operate with the Convention should not be relinquished, even though it did prove a partial failure; and the advantages offered by the Affiliation scheme of the Photographic Society of Great Britain should not be overlooked. In India, Africa, Australia, New Zealand, and elsewhere attempts should be made to form professional societies similar to those above mentioned. Every such effort should be encouraged and aided as far as possible by the older associations.

Finally, an International Union is much needed, and as it is always economy to use existing institutions rather than to create new ones, I would suggest that a great effort be made to have at least one delegate, and, of course, as many more as possible, from each of the national associations in attendance at the International Photographic Congress. Though that Congress at present is rather scientific than professional in its tendency, most of its subjects of discussion are of great practical importance to the professional worker. Moreover, any subject suggested by delegates, or by the societies they represent, would be accepted for consideration; and if even two or three professional representatives joined, there would be no difficulty in arranging a separate professional section.

The suggestions that I make as being immediately practicable are not novel: they are not revolutionary. You will see that I almost entirely suggest procedure on present lines. The only new thing that I ask is that photographers will consider their present societies not only as ends in themselves, but also as means to a greater end. There is much to be done in perfecting the machinery before we can hope for much in the way of results, and the work must be done in the good old fashioned way, "line upon line, precept upon precept; here a little and there a little." That much could be done by the ideal union no photographer doubts. But many, the immense majority, look upon the thing as utopian. And so it is if we are to wait until the whole is in our grasp before attempting to realise it This has been the bane of too many photographic efforts at unity. It is their bane to-day. The men who should support them, and often the men who do support them, are unable to do the things that they would, and unwilling to do the things that they can. For the great things they are powerless, and the multitude of little things that they can do they despise. But in our present unions there is so much promise that we ought to feel encouraged to trust and to work for the future. And this year, when international courtesies are being exchanged, when parties of old-world photographers have been visiting this new world, and when the series of congresses is holding up the ideal of unity, I have felt that we could have no better or more profitable subject of discussion than "Photographers' Efforts at Union." It may be that from our deliberations some practical good may spring. I should like, if possible, to have some resolution sent from this Congress asking the various bodies that I have named to consider what is possible in the way of federation, immediate or prospective; and, even if we have no practical photographic result, I trust that our meeting may twist one small strand in the tie of fellowship that binds the nations, and help us one step nearer to

> The parliament of man,
> The federation of the world.

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THE ELECTRICAL ACTION OF LIGHT UPON SILVER.

At the meeting of the Asiatic Society of Bengal in May last, Colonel Waterhouse read a paper describing some observations of the electrical action of light upon silver and its haloid compounds he had lately been making. The subject is of interest in connection with the formation of the invisible photographic image as well as with electro-actinometry, and an abstract of the paper will, no doubt, be acceptable to our readers.

The paper commences with a short summary of the previous observations of Becquerel, Hunt, Grove, Pacinotti, Hankel, Dewar, Egoroff, Moser, Minchin, and Griveaux on the electrical action of light on silver and its haloids and on other metals in various solutions. The apparatus used is next described. This consisted of two kinds of cells similar to those used by Becquerel—one being vertical, the other horizontal. The former consists of a glass cell in which the plates forming the electrodes can be coupled face to face or back to back, one being screened from light by the other and by one or two interposed screens of ruby or yellow glass, the cell being closed all round except at an opening on one side. This glass cell is enclosed in a wooden box with a shutter on one side sliding in front of an opening corresponding to the one in the glass cell. In front of this shutter there are grooves in which coloured glasses can be placed in front of the opening. The upper part of the wooden case is open, but can be closed by a lid, through which, if necessary, a funnel may be passed to admit of solution being poured into the cell without letting in light. In this way sensitive plates can be put into the cell in the dark-room and the solutions added at the time of observation. The silver plates used with this cell were 4 by 1¼ inches, other plates, such as photographic dry plates or celluloid films, being about the same size or smaller.

The horizontal cell consists of a wooden trough divided into two compartments by a double wooden screen which allows the free circulation of the electrolytic fluid, while completely shutting off light from the unexposed compartment. This trough is covered with a lid, with two large openings fitted with hinged shutters, to the undersides of which mirrors are attached for the purpose of reflecting light at will on to one or other of the sensitive surfaces in the compartments below. By this arrangement the whole of the sensitive plate can be exposed to light, while the unexposed plate is more perfectly protected from strong light than it is in the vertical cell. The horizontal trough is constructed to take two plates 3¼ by 4¼ inches, or smaller.

In most cases, even under favourable conditions, the light currents observed are very weak and, consequently, an exceedingly sensitive galvanometer is necessary. The one used in these experiments is the latest modification of the Rosenthal micro-galvanometer made by Edelmann, in Munich. It is said to be sensitive to currents of a billionth of an ampère with a resistance in the coils of only 1,000 ohms. It can be set up in any position; is simple in construction; exceedingly sensitive: convenient in use, and easy to observe with fair precision, even in a town on a bad foundation like Calcutta. By using the directing magnet the normal sensitiveness can be greatly increased; but in most of the experiments this magnet was not used, and when it was used the increase of sensitiveness was limited to about five times. The galvanometer is fitted with a small telescope by which direct readings are made off the mirror from a millimetre scale placed at one metre from it.

As it was found that work with the spectrum required entirely special arrangements for obtaining a sufficiently large amount of light to make the action of the different rays of the spectrum distinctly visible in the telescope of the galvanometer, and as the weather was also unfavourable, the action of coloured light has only been observed through the ordinary coloured glasses as found in the bazaar. In all cases sunshine was reflected on to the sensitive surfaces by means of a mirror, as it was not convenient to use the direct rays of the sun.

Several difficulties are noticed as occurring in the course of the observations—among them, polarisation, or other currents generated in the cells independently of the action of light, but sometimes brought about by it; apparent reversals of current due to decreases in the strength of the light; the unusually cloudy and changeable state of the weather during the course of the experiments, and the want of steady clear sunshine made it difficult to compare the results of observations on different days.

The observations detailed in the paper are confined to pure silver plates in water, dilute acids, dilute alkaline solutions, and on pure silver plates in a dry state, the observations on the haloids being reserved for a future paper. The silver plates used were nearly pure, being about ·993 touch (not ·974 as stated in the paper). They were 4 by 1¼ inches and immersed in the various solutions from 2 to 2½ inches and about half an inch apart.

I.—Silver Plates in Water.

Distilled Water.—The current observed in distilled water between the exposed and unexposed silver plates was exceedingly small and could only be clearly seen with strong sunshine. In nearly all cases the exposed plate was positive to the unexposed, as zinc to copper, and formed the anode or dissolving plate of the couple.

Tap Water.—The ordinary water from the town supply was used; and at the time of observation there would be a fair proportion of chlorine in it, amounting to 1 to 1·2 parts per 100,000. In most of the cases observed the exposed plate was distinctly positive to the unexposed, as with distilled water. The plates were rather more sensitive than in distilled water, and were easily affected by changes in the strength of the light. In some cases when fresh plates were exposed to daylight the exposed plates were negative to the unexposed, but on subsequent exposure to sunshine they were positive and remained so on further exposures. Hankel found that of two silver plates immersed in water the plate exposed to white clouds, or to the setting sun, was negative.

II.—Silver Plates in Dilute Acids.

Becquerel found that with plates of gold or platinum, immersed in acid solutions, the plate exposed to the light was always positive. The same rule seems to apply to silver plates in most cases, but not in all.

Dilute Sulphuric Acid.—The action of dilute sulphuric acid upon silver plates under the influence of light seemed to be rather irregular, the exposed plate being sometimes negative on first exposure and positive in subsequent exposures or *vice versâ*, but the general tendency seemed to be for the exposed plate to be positive.

In distilled water acidified with 1 drop of ordinary sulphuric acid in 60 c.c. of water, the exposed plate was generally positive when exposed to bright sunshine, but on two occasions it was observed to be negative.

In tap water similarly acidified, the plates appeared to be negative on first exposure, under white or coloured glasses, and on being exposed again later were also negative, but became positive and more sensitive both to white and coloured light. The plates were very sensitive to changes in the strength of the light.

With plates immersed in distilled water containing 1 per cent. of acid, it was found that if the plates were exposed to sunshine a very short time after being immersed in the dilute acid, they were at first negative and fairly sensitive to light; but in a case when the plates had been kept in the cell for twenty-four hours to reduce polarisation, they were positive and much less sensitive than the plates which were negative. After being exposed a few times they lost all sensitiveness.

In tap water containing the same proportion of acid, the exposed plates were generally positive on first exposure; but the current quickly decreased on subsequent exposures, and in some cases the exposed plate became negative.

With plates immersed in distilled water containing 2 per cent. of acid the deflections were usually positive, and the plates became less sensitive by repeated exposure and by keeping.

With plates immersed in freshly-mixed dilute acid at 5 per cent. the exposed plates were positive on first and subsequent exposures; but with plates kept in the acid for twenty-four hours the first plate of the pair was negative when exposed; but when the unexposed plate was also exposed it remained positive. The increase of acid lowered the sensitiveness of the plates.

Dilute Nitric Acid.—With nitric acid the exposed plates are nearly always positive and the action is more uniform than with sulphuric acid, especially when dilute solutions containing 1 per cent. or more of acid were used. Becquerel also found the exposed silver plate positive in dilute nitric acid.

Dilute Phosphoric Acid.—With dilute phosphoric acid the exposed plates were almost always positive. On first exposure they showed fair sensitiveness, but it rapidly decreased on further exposure.

Dilute Hydrochloric Acid.—With 1 per cent. of hydrochloric acid, sp. g. 1·150, in distilled water, the exposed plates were uniformly positive, and, owing to the formation of a deposit of chloride, they were much more sensitive to light than plates immersed in acids which do not form a sensitive compound with the silver. The sensitiveness was greater according to the time the plates had been kept, but was reduced by increase in the strength of the acid. Coloured glasses all gave positive deflections, the red being the smallest, and then the green.

Dilute Hydrobromic Acid.—With dilute hydrobromic acid, the exposed plates were uniformly *negative* and very sensitive to light. Coloured glasses gave fairly large negative deflections, the red being the smallest, and then the yellow. The plates were coated with a grey greenish-yellow deposit of bromide, which turned dark on exposure.

Dilute Hydriodic Acid.—A dilute solution of the acid was roughly made up by precipitating a solution of barium iodide with sulphuric acid. There was, however, a quantity of free iodine present, the solution being of a light sherry colour. The exposed plate was strongly negative in sunshine, but comparatively very insensitive to weak daylight. Coloured glasses gave negative deflections, the red and green being the weakest. The plates became less sensitive by keeping. They were covered with a strong loose deposit of iodide, under which the silver surface was darkened. A faint image of the exposed part of the plate was visible.

Dilute Glacial Acetic Acid.—In dilute glacial acetic acid at 1 per cent. the exposed plates were positive, but became less sensitive by keeping. In a 5 per cent. solution the exposed plate was also positive, but less sensitive than in the weaker acid.

Dilute Formic Acid.—In dilute formic acid at 1 per cent. the exposed plate was positive, but after being kept in the cell for twenty-four hours became much less sensitive.

III.—Silver Plates in Alkaline Solutions.

Becquerel found that when platinum or gold plates were immersed in alkaline solutions, the plate exposed to light was negative. This rule does not appear to hold good with silver, the exposed plate being almost always positive.

Solution of Caustic Potash.—In a solution of caustic potash at 1 per cent. the exposed plate was positive and fairly sensitive. Coloured glasses gave positive deflections, the red and yellow being the smallest.

Solution of Potassium Carbonate.—In a solution of anhydrous potassium carbonate at 1 per cent. the exposed plate was positive and fairly sensitive to diffused daylight as well as to sunshine, more so than in the solution of caustic potash.

In tap water with a few drops of 10 per cent. solution added to 60 c.c. of water, the exposed plates were also positive and very sensitive on first exposure, but the sensitiveness decreased with the further action of light, and also by keeping the plates in the cell.

Solutions of Sodium Carbonate.—In a 1 per cent. solution of anhydrous sodium carbonate in distilled water the exposed plates were positive, but much less sensitive than with the potash salt, and further lost sensitiveness by subsequent exposures. With a stronger solution at 5 per cent. the results were similar, but the plates appeared somewhat more sensitive.

Solution of Lithium Carbonate.—With plates exposed shortly after immersion in a 1 per cent. solution of lithium carbonate in distilled water, the plate exposed to sunshine was positive. The plates lost sensitiveness after the first exposure as well as by keeping, but remained positive.

Dilute Solutions of Ammonia.—With a solution of 4 c.c. of strong liquid ammonia in 100 c.c. distilled water, the cell having been left standing fourteen or fifteen hours, the exposed plate was found to be positive, but exceedingly insensitive.

In a freshly-mixed solution of half the above strength, the exposed plate was rather more sensitive; but the sensitiveness decreased on further exposure, and after a short time the plate became quite insensitive.

Potassium Cyanide.—With solutions of potassium cyanide at 1 per cent. there is a strong polarisation current which takes several hours to subside. When freshly immersed the exposed plate was negative, but not very sensitive. On subsequent exposures the plates were first negative and then positive and gradually lost sensitiveness. Some peculiar reversals and polarisation currents were observed, which require further examination. The plates were coated with a dark grey deposit, thicker at the upper part of the plate than at the lower. About the immersion line there was a yellowish white deposit and the plates were deeply corroded, but no sign of an image of the exposed part was visible.

Plain Silver Plates Dry.—When a silver plate about 5 in. by 4 in., not immersed in any solution, but with its ends connected by silver bands to the terminals of the galvanometer, the directing magnet being placed so as to increase the sensitiveness of the galvanometer about thirteen times, was exposed to light, so that one-half remained unexposed, it was found possible to detect a slight current between the exposed and unexposed halves of the plate, the exposed half being positive to the unexposed. With a plate that had been lying by for some time and was not cleaned before exposure, the deflection in bright, clear sunshine was fairly large, amounting to about ten divisions, or rather more than the deflection caused by the contact of dry zinc and copper. When the plate had been cleaned with cyanide of potassium, followed by rubbing with emery cloth, the deflection on exposure was still positive but much smaller, and became less by subsequent exposures.

Some other very pure silver plates, about 999·5 touch, also gave positive deflections on first exposure but very small, but sometimes the deflections were negative or became so by prolonged exposure. With silver deposited on glass the deflections were sometimes negative and sometimes positive, but always very small. These effects did not seem to be due to heat, because with the plate first observed and with the purest silver plates the action of heat applied at the exposed end of the plate was to cause a positive deflection; but with other silver plates not quite so pure and with some largely alloyed with copper, the heated end of the plate was always negative to the cool end. The deflection invariably increased with the continuance of the heating, and was always in the same direction on repetition of it. The light currents, on the other hand, showed a decrease of deflection from repeated exposures, and sometimes a change of sign contrary to the heat currents shown by the same plates. The observation is a very difficult one and requires further repetition, under more favourable conditions of light and weather, in order to obtain definite results.

From the above experiments it would appear that, as a general rule, sunlight has an oxidising or dissolving effect on silver, whether in acid or alkaline solutions, the exposed plates being nearly always positive, and, consequently, forming the anode of the voltaic couple. With solutions decomposed by silver, and forming sensitive compounds with it, the action is variable.—*Journal of the Photographic Society of India.*

* * *

Cantor Lectures.—Mr. Lewis F. Day concluded his admirable series of lectures at the Society of Arts, entitled "Some Masters of Ornament," with the following words, which will commend themselves to workers in other branches of art work:—"No man is probably so absolutely at the discretion of the public demand as he thinks himself to be. The hardest taskmaster will scarcely refuse *better* work than he asks of you, if you choose to do it. Do it, I say, for your own satisfaction. If you do not, if that is not inducement enough for you, well, then, perhaps you are not so much an artist as you think yourself. One thing is certain: art asks some sacrifice of her worshippers, and all artists make sacrifice, and make it cheerfully. Do not suppose I advise anyone to quarrel with his bread and butter; but if he is greedy about the butter, and especially if he cannot do without jam, it is a sure sign that his artistic appetite is not in a healthy state. Further than that, I doubt if it be to a good workman's interest—even in the narrowest sense, I doubt if it be to the interest of his pocket—to be too absolutely the slave of any one; and especially I doubt the wisdom, as I doubt the courage, of the Englishman who succumbs without a fight, and a good fight, to the demand for French styles of art. Establish the French styles in England, and all who want good work will go to France for it, for the obvious reason that at Louis XV. or Louis XVI. the Frenchman can give us points, and thrash us, whereas on our own ground we can beat him; or, if that be not so certain, it is only on our own ground that we have any chance of thrashing him. To adopt French styles is to play into the hands of foreign competition. It is to our interest, as it should be to our pleasure, to make our work our own; and, being that, 'twill not be French at all events. No one I hope will go away with the idea that, in bringing before you in this course of Cantor lectures, the work of 'Some Masters of Ornament,' I would suggest that any man should deliberately found himself upon them, still less that he should confine himself to the imitation of what they actually did. It is mainly for inspiration that we must look to them. The student may find *his* master among them, or he may not. Anyway it can do him no harm to know what has been done, even though he should have no sympathy with it. I would have every man, once full-grown, go his own way in art; but I would have him follow it with his eyes open, and not blindly. The danger of independence is when it is founded upon ignorance. I would have a man dare, but I would have him dare knowingly."

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, AUGUST 25, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Book-stalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.		Half-yearly.		Quarterly.	
	s.	d.	s.	d.	s.	d.
If obtained of a Newsvendor or at a Railway station	8	8	4	4	2	2
Including postage to any part of Great Britain	10	10	5	5	2	10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13	0	6	6	3	3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PHOTOGRAPHY ON THE WARPATH.

WE may be quite sure that if war should again be declared between any of the great Powers, as pessimists are so fond of anticipating, photography will lend its aid to the ghastly work to a degree never before contemplated. Happily we have had no campaign of importance since the introduction of gelatine plates caused a revolution in the art, and its applications to warfare before the time of the convenient dry plate were necessarily few. The photographic work done during the four months' investment of Paris by the German Army in 1870 was by far the most important yet recorded, for it made possible a method by which long despatches could be sent by aërial post with great facility. This system was worked out by M. Dagron, who was one of the first to produce photographs of minute size, such as are commonly associated with a tiny lens in small articles of cheap jewellery. Such micro-photographs he turned to good account on behalf of those shut up in Paris, reproducing all kinds of printed matter on a pellicular substance of which collodion was, no doubt, the basis; and posting the copies so produced rolled up in a quill attached to a pigeon's tail. Each little pellicle would contain the reproduction of about sixteen pages of printed matter, and eighteen of such pellicles could be entrusted to one bird, for they weighed collectively less than one gramme. In this way were the Parisians kept aware of what was going on in the outside world while the enemy was at their gates. When we remember that homing pigeons have often covered a journey of two hundred and fifty miles, and have occasionally quadrupled that distance, the importance of this micrographic system of correspondence becomes apparent.

Another important application of photography to military service is the mapping of the enemy's lines by means of a balloon-supported camera. The late Mr. Woodbury, about sixteen years ago, invented a most ingenious form of balloon camera which we well remember him explaining to us with some pride. It was the sole burden of a balloon about eight feet in height, and the plates—set on a horizontal revolving disc—could be changed, and the shutter released by electric conductors woven into the cord which held the aërostat captive. This balloon arrangement was brought under the notice of the War Office, but was never adopted. It was evidently before its time. The art of gas compression was then in its infancy, and celluloid film photography, as we now understand it, was unknown. It is certain that a much improved and effective balloon camera, on the lines laid down by Woodbury, could now be produced, and will probably make its appearance when the right time comes. It is within the bounds of possibility that such an instrument will be employed in the future in mapping extensive tracts of land. With favourable weather, and a means of keeping the balloon at one altitude, and the sensitive film horizontal, the enterprise should present no great difficulty.

As an instance of the value of balloon photography in warfare we may quote from an interesting paper recently contributed to an American military journal, by Lieut. Williams. He says:—

> "It is interesting to note that even with the slow test plates, a photograph from a balloon was taken and used for war purposes. In May, 1862, the Union Army before Richmond made use of a captive balloon. From it a photographic view was taken, showing in perspective the country from Richmond to Manchester on the west, and to the Chickahominy on the east (about twenty miles). The James River, the other water-courses, the railroads, the ordinary roads, the marshes, and the dispositions of troops were all accurately traced. Two copies were made and the pictures were divided into sixty-four squares, marked A——1, A——2, &c.
>
> "General McClellan had one of the copies and the other one was taken aloft by the aeronaut. The latter

could telegraph what was taking place within view and easily designate the location of all movements, &c., to the general."

If such a system could be carried out so successfully thirty years ago, what perfection might be reached with the improved processes and appliances of to-day!

It is probable that the tele-photographic lens, as perfected by Dallmeyer, will find its chief use in warfare. No commander in the field would be without a telescope if he could help it, and as this lens points to a means of making actual records of distant objects, as magnified by a telescope, its advantages are obvious.

Those who have little practical acquaintance with camera work will probably assume that the introduction of this instrument into the battle-field will result in the production of realistic pictures of heroic deeds, and hand-to-hand combats, such as painters have been in the habit of placing before us, or, at least, of such desperate struggles for the mastery as in time of war fill up double pages in our illustrated journals. In this they will be disappointed, and it is as well that they should be spared the actual horrors which occur amid the carnage of war. Mr. Rudyard Kipling has described some of them with sufficient detail to render photographs quite unnecessary.

Battle pictures will assume the form of maps, in which dark lines will indicate massed bodies of men who are killing each other, although a mile of space may separate them. Smoke, which has always been such a convenient cloak for shortcomings to the painter of battle scenes, will be absent, and the whole scene will resolve itself into a representation of an elaborate machine for the extinction of life. May the time be long before we obtain additional experience of Photography on the Warpath!

A COPYRIGHT CASE.

A CASE of considerable interest to photographers has recently been tried in the United States Circuit Court. The complainant, Mr. Benjamin J. Falk, the well-known photographer, sued Mr. R. M. Donaldson for infringement of his copyright on a photograph of the actress, Julia Marlowe. The copyrighted photograph was used by the defendant as a basis of a lithograph, and provided the design of the photograph is so far copied as to appropriate his manifestation of his conception, or even a substantial part, it constitutes an infringement.

The defendants denied that the photograph represented any original, intellectual conception of the complainant.

Complainant testified as follows: "I tried to produce an ideal portrait of the Greek maiden of the play, and considered that the main sentiment embodied in the character is a combination of simplicity, innocence, and courage."

Complainant further explained at length the methods employed by him in such cases to make the subject so forget his surroundings as to mentally assume the part or character to be represented in the picture; and the arrangement of the curtains, screens, and head lights, so as to bring out expression and character.

The defendants claim that a photographist is a mere mechanic, but an examination of the photograph showed that it is the work of an artist. The question is, whether the artist was Miss Marlowe or complainant. How far the artistic contributions are to be attributed to the talent of Miss Marlowe, it is impossible to say. The testimony of complainant as to his share in producing the result is not denied.

He was an artist before he became a photographist. He had had a large experience in taking photographs, and, on this occasion, he appears to have availed himself thereof, and, by the use of lights and shadows, and various devices, to have produced a most satisfactory result.

Defendants denied that they had copied complainant's photograph, or any part thereof.

There was a sharp conflict of testimony as to whether Mills, one of the defendants, admitted that their lithograph was a copy of complainant's photograph, and attempted to settle with complainant for infringement.

But the real question was not one as to an admission of fact, but whether the lithograph is an illegal appropriation of the substantial parts of the photograph.

The forcible argument of counsel for the defendants upon this point proceeds upon the theory that the idea or conception of the original artist may be followed and used by another, provided he clothes such idea or conception in different language or form. He claims that the lithographer had a perfect right to use the photograph for a study, suggestion, and even as a model, in developing his own ideas, and that, as he had merely taken the conceptions of the other, and clothed them in his own form and expression, his work was original. Copying, he says, involves not only taking another's ideas or conception, but also their expression.

The question presented here is, whether the defendants have so far copied the design of the complainant as to appropriate his manifestation of his conception, or a substantial part thereof.

The lithograph is not strictly a copy of the photograph. It differs from in it various ways. Some forty differences have been suggsted by experts introduced by defendants. Expert testimony in such a case has no greater weight than expert testimony upon the question of infringement.

Imperfect and comparatively lifeless as the lithograph is, yet it needs no expert to show that, although varying somewhat in design, it is a copy of the conception of complainant. The angle of the head, the clasping of the arms, the interlaced fingers, and the general expression and pose, irresistibly suggest and recall the photograph.

Defendants claim that the value of the photograph has not been impaired by the publication of the lithograph, and there is no infringement, because the photograph and lithograph are not rivals, and are not in competition in any way. This fact does not affect the question of infringement, but only the measure of damages (*Falk* v. *Howell*, 37 Fed. Rep., 202).

The measure of complainant's right is not limited by the mere fact that the lithograph would not displace the photograph in the market. He is entitled to any lawful use of his property whereby he may get a profit out of it.

It is not a question of the extent of damages, but of violation of rights.

I have not overlooked the suggestion of counsel for the defendants that the application of the copyright law to cases like the present may lead to abuse, and be productive of injustice. But this Court must administer the law as it finds it. Under the rule established in the Sarony case, the complainant must be held to be the author of the conceptions expressed in the photograph. The defendants have appropriated a substantial portion of such conceptions. Let there be a decree for an injunction and an accounting.

LATITUDE IN EXPOSURE AND SPEED OF PLATES.

BY F. HURTER, PH.D., AND V. C. DRIFFIELD.

(*Continued from page* 519.)

THE following are the details of such an experiment, and diagram No. 2 illustrates graphically the method of ascertaining the equivalent of the light intensities in candle-meter seconds. A plate was cut into four parts; three of them were exposed in the camera to a subject as just described, and the fourth was exposed to the standard candle, the exposures ranging from 0·312 cms. to 160 cms. The three exposures given in the camera were 0·8, 4, and 24 seconds respectively, and all four plates were developed together in one dish for the same length of time. The densities of the negatives and of the graded plate were found to be—

Densities of Negatives.

Exposure.	0·8	4	24
Sky	0·940	1·695	2·280
White in sunlight	0·940	1·735	2·280
White in shade	0·620	1·360	2·080
Black in sunlight	0·120	0·530	1·290
Black in shade	0·060	0·320	1·025

Densities of Graded Plate.

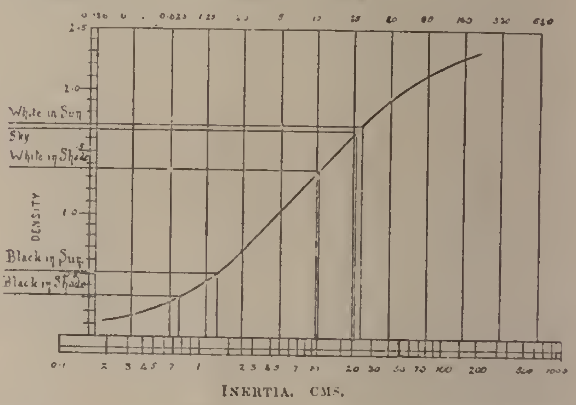
Exposure. cms.	Density.	Exposure. cms.	Density.
0·312	0·150	10	1·360
0·625	0·275	20	1·665
1·25	0·440	40	1·985
2·5	0·700	80	2·160
5·0	1·040	160	2·295

The densities of the gradations obtained by these ten exposures were plotted as a curve, the logarithms of the exposures as abscissæ, and the densities as ordinates. Parallels corresponding to the densities of the three negatives were then drawn, and where they intersect the characteristic curve perpendiculars were drawn through the points of intersection. These perpendiculars indicate at once the equivalent exposures in centimetres which produced the corresponding densities. In diagram No. 2 the densities of the negative which received an exposure of four seconds are thus plotted, and it will be seen that the respective equivalent exposures are—

Negative, 4 secs. exposure.	Sky	20·80 cms.
	White in sun	22·50 „
	„ shade	10·20 „
	Black in sun	1·62 „
	„ shade	0·77 „

It will thus be seen that the whole range of light intensities from matt black in the shade to the sky or white cardboard illuminated by the sun, is as 0·77 : 22·5, or as 1 : 29. Similar results were obtained with the other two negatives, and the following table gives their equivalents, the highest light being put = 30.

Diagram No. 2.



Relative intensities of light emitted by	As shown by negatives exposed. 0·8	4	24	Mean.
Sky	30	27·7	29	28·9
White in sun	30	30	30	30
„ shade	15	13·6	13·0	13·8
Black in sun	1·83	2·1	1·78	1·90
„ shade	1·16	1·02	1·01	1·06

We learn from this experiment that an object illuminated by direct sunlight is about twice as bright as the same object in the shade: and that the whole range between a matt black object in the shade and a brilliantly illuminated sky is about as 1 : 30. It will also be seen that the exposures given in the camera vary as 1 : 30, and yet the same relation as to light intensities is revealed by the shortest as by the longest exposure.

If we now examine Professor Burton's statements in the light of this, to him, evidently new knowledge, we have to point out that, according to his own confession, he cannot alter density ratios between limits of exposures 1 : 10; and he would not, we presume, undertake to seriously alter density ratios between such narrow limits as 1 : 30, since he says that "it is necessary to have ranges of exposures of at least several hundreds to one to be able readily to vary the density ratios."

Now, assuming certain conditions, *actually never present in photographic practice*, it seems, according to Professor Burton, true that it is possible to vary density ratios when the exposures vary between at least several hundred to one. Such variations do not occur in ordinary subjects; the light intensities vary between limits of 30 : 1 at most. Professor Burton's faculty of producing negatives which yield similar prints is not due to his mode of development; it lies wholly in the latitude of the plate, and in the narrowness of the range of light intensities in his subject. He could have obtained identically the same result, and possibly a better, by means of *one* developer, and by simply varying the time of development for the shortest exposures.

Two negatives are alike in their printing quality when the density differences are alike throughout, whatever the density ratios may be. Two negatives may have totally different density ratios, and yet be equally true to nature, and yield identical prints, whatever printing process may be employed, so long as it is the same in both cases. Thus, so long as the light intensities of a given subject lie within a certain limited range, and the time of exposure is such that the densities produced fall within the straight part of the characteristic curve, so long will the density differences for the same subject be independent of exposure, and alike.

Suppose the length of the straight part of the curve cover a range of exposures 1 : E; and the light intensities to be photographed lie between the limits 1 : I, the latitude of the exposure would then be $1 : \frac{E}{I}$; and within these two limits any exposure would produce negatives which, developed in the same developer for the same length of time, would yield negatives giving identical prints. Take the case of plate A: the straight part of its characteristic curve may be taken as extending from exposure 1 cms. to exposure 80 cms.—*i.e.*, 1 : 80. If a subject had to be photographed which was illuminated by diffuse light only, and in which the light intensities varied from matt black to white or even more, say a range of 1 : 20, the plate would yield negatives with exposures varying from 1 : 4 almost identical in printing quality, though they were all developed together. If a little deviation from truth is permissible, and the portion of the characteristic curve lying between exposures 0·312 cms. and 160 cms. (a range of 1 : 512) be considered as sufficiently accurate, the same subject would permit a latitude of exposure of $\frac{512}{20} = 25$, and there would still be very little difference in the negatives, particularly if development be prolonged in this case of the shorter exposures. For a sunlit landscape the latitude would be $\frac{512}{30} = 17$.

The experiment we have described was made on a plate, the straight part of which only extended from an exposure of about 15 cms. to one of 50 cms. For an ordinary sunlit landscape its latitude of exposure is therefore small, namely $\frac{50}{15 \times 30} = 1·1$; and, consequently, if a correct negative be required on such a plate, the latitude of exposure would have to lie within 10 per cent. of its own value. The negative which was exposed for four seconds is the truest of the three; the one which received one-fifth of this exposure renders the high lights correctly, but not the shadows; and the one which received six times the exposure of the first-named negative renders the gradations as far as white in diffused light correctly, but not the highest lights. The following table shows the density differences for the various parts of the negatives, which would have to be all alike if the negatives must yield identical prints:—

Exposure ..	0·8″	4″	24″
Density of clearest spot ..	·060	·320	1·025
Density difference—Black in shade and black in sun..	·060	·210	·265
" " Black in sun and white in shade	·500	830	·790
" " White in shade and white in sun..	·320	·375	·200
Total range of negative—Black in shade and white in sun	·880	1·415	1·255

It will be seen that the negative which received four seconds, the correct exposure, gives for all parts of the subject, with the exception of the highest lights, practically the same density differences as the one which received 24 seconds' exposure. In prints from these two negatives all gradations lying between black in shade and white in shade would be exactly alike, though the exposure was, in the case of one negative, six times as much as in the other. The negative which received one-fifth the correct exposure only renders the high lights with equal truth; if, however, this negative had been developed for a longer time than the other two, its range could have been considerably improved; the ratios remaining the same, the density differences would have altered, and it could easily have been brought to the following:—

Exposure ..	0·8″	4	24
Density of clearest spot ..	·100	·320	1·025
Density difference—Black in shade and black in sun..	·100	·210	·265
" " Black in sun and white in shade	·830	·830	·790
" " White in shade and white in sun..	·530	·375	·200
Total range of negative—Black in shade and white in sun	1·460	1·415	1·255

In this case the resulting prints would have differed little from each other, since all the main gradations lying between black in shade and white in shade would have been represented by the differences—

0·8	4″	24
0·930	1·040	1·055

which are so nearly alike that the eye could not detect the difference. Only in the highest lights, beyond white in shade, would the difference be at all apparent. The three negatives differ, however, very materially in the time they require to yield prints of equal depth in the shadows. The last of the series (24 seconds' exposure) requires six times, and the second (correct exposure) nearly twice—⅝ the time which is needed for the first to print to the same depth.

From these experiments it is clear that latitude in exposure is not inherent in modifications of the developer, but in the plate itself, and in the comparatively narrow range of intensities which are ordinarily met with, combined with the inability of the eye to judge of the more or less truthful rendering of the various gradations.

As already pointed out, among the many negatives which may be produced by mere variations in exposure, there is only one which combines truthful rendering of tone with minimum density ; and it is this one which the practical photographer aims to secure. For the more accurate and certain production of this particular negative, it is necessary to ascertain the speed of the plate with tolerable accuracy ; and we now propose to give a short, practical description of the method we have adopted for this purpose. We believe that many amateur photographers would be glad to be in a position to determine speeds for themselves and to obtain that knowledge of the properties of their plates which can only be derived from a study of the characteristic curve.

The course we pursued in our original investigations was to expose portions of the same plate consecutively to the light of a standard candle, doubling each successive exposure as we proceeded, and we naturally adopted this course when we came to make our first determinations of speed. The errors to which we found the candle liable, however, when we had not the experience in its use which we have since gained, showed that much was to be desired in order to secure a constant ratio of illumination between the different exposures, and, in order to secure this, we adopted the plan of making our exposures which we are about to describe, and which we believe to be the most satisfactory By this method the whole of the exposures are made simultaneously, so that any fluctuations taking place in the light of the candle proportionately affects all the exposures, and the determination is consequently more decisive, and less liable to error than if fluctuations n the light were to take place during one or more of the individual exposures. Moreover, the possibility of error arising from the difficulty of accurately timing very short exposures is wholly eliminated.

We will, in the first place, make a few remarks upon the standard candle as a unit of light. While we candidly admit that the candle is by no means an ideal standard, we must say that we are not at present aware of any satisfactory substitute. We adopted it, in the first instance, because it was ready to our hand, well known and recognised as a standard, and easily obtained. And we may perhaps be forgiven for entertaining a somewhat higher opinion of it than some of our friends, inasmuch as it was, at any rate, reliable enough to lead to the discoveries we have made. It is asserted that the amyl-acetate lamp is a better standard than the candle, but the practical difficulties in its use are such that we can only say it has not proved itself so in our hands. Altogether, we know of nothing, as yet, better as a standard than the candle ; and if the suggestions for its use which we are about to make be adopted, we do not think it will lead to serious errors. Two determinations of the inertia of the same plate which we have just had occasion to make, on two different evenings, differed only by 0·04 cms., a discrepancy of absolutely no practical moment. We have unquestionably found that the standard candles of different makers do vary, and, for this reason, we think it well to say that the candles we have used throughout our investigations were supplied by Messrs. Sugg & Co., Vincent Works, Westminster. The normal height of the flame of these candles, measured from the lowest point at which the wick blackens, is about 45 millimetres.

Our method of using the candle for the purpose of speed determination is as follows : We will assume that the candle we are about to use has been used before. We light it, and then, with scissors, snip off the hardened tip of the wick ; the flame of the candle will now be found to grow steadily in height, and as soon as the distance from the tip of the flame to the lowest point at which the wick blackens has reached 45 millimetres the exposure may commence. The candle flame may now be relied upon to remain sufficiently constant for about ten minutes, and this is amply long for our purpose. If after this time, for any other purpose, the light is required, it will be well to again trim the wick, and start *de novo*. The height of the flame may be measured by a strip of cardboard, upon which two marks are made at a distance of 45 millimetres apart. It is, of course, obvious that these experiments should be made in a room free from draught, and it is often a wise precaution to place the candle in a tall box, open on one side, and well blackened inside. We are strongly in favour of keeping the candle well in view during the entire exposure, so that should any fluctuation in the light take place, we may be aware of it. If the candle be used in the open room, all white or bright surfaces capable of reflecting light should be removed.

(*To be continued.*)

FINE LINE SCREEN PLATES AND THEIR USE.

BY M. WOLFE.

WHILE I appreciate most highly the honour conferred upon me of preparing a paper to be read before you on the subject, "Fine Line Screen Plates and their Use," I also fully appreciate that the task is one of difficulty, and that to treat the question properly much more time than I can take would and ought to be required.

The manufacture of screen plates has occupied my attention for the five years past, and necessitated many experiments and expensive ones and required large research, yet the field beyond still seems more immense than that already passed over.

The subject is one requiring much thought and study and constant experimenting. Without taking up time I will at once proceed to my subject, giving, in my own plain way, my impressions and the results obtained by me, being fully aware that same may be the subject of much just criticism.

The object of fine line screen plates briefly stated—their use being for the production of half-tone relief blocks for typographic printing.

Screen plates are rulings on glass, having opaque lines with transparent spaces, and can be produced by mechanical means or by mechanical and photographic processes combined. In actual use, according to the character of the work to be reproduced, screen plates may have from sixty-five to two hundred lines to the inch; the most generally useful screen having one hundred and thirty to one hundred and thirty-two lines to the inch.

The screen is for the breaking up of the continuous gradation of light and shade in a photograph, into absolute opaque lines and dots, with transparent spaces between.

It is not an easy matter to convey to the uninitiated the exact meaning of the above terms, but it can be easily understood by the examination of a photograph having a continuous gradation from light to shade and a reproduction from same by the intervention of fine line screen plates. In the latter the picture is exact in facsimile, the impression to the eye is the same as the original picture, but instead of the gradation of light and shade as described above, it will be found to have an even tint or colour of dark lines and dots with perfectly white spaces to correspond to give the effect of the original picture.

It will thus be seen that by the intervention of the screen, as will presently be described, it is possible—

First, to make a half-tone negative in absolute black lines and dots with transparent spaces between to correspond; and

Second, from this an engraving with an even surface, that when mounted on a block, type high, is capable of producing the most beautiful impressions known to the typographic art.

To do my subject full justice some mention must be made of the earlier attempts to produce typographic printing blocks. As long ago as October 29th, 1852, Mr. Fox Talbot took out a patent—he used folded gauze to obtain a grain. Later on, December 4th, 1872, twenty years after the above, Walter Woodbury patented the use of "mosquito netting" and "Brussels net," and again, in a patent, May 30th, 1873, he claimed the use of fine ruled lines. Lastly, Woodbury obtained a patent, October 5th, 1883, for the use of fine ruled lines, netting, gauze, dots, or a print from a grained stone.

Of all the above European patents, none seem to have had any practical value, and the first published attempt to obtain relief half-tone blocks by the aid of photography was the patent of Meisenbach in Munich, whose method consisted in imposing a transparent positive of the subject to be engraved, in connection with a sheet of glass covered with diagonally ruled lines alternating opaque and transparent, and re-photographing this positive and ruled screen together and reversing the direction of the lines upon the screen by inverting the screen after about one-half of the exposure is completed. This method, with various modifications, as will be explained further on, is in use by a good many engraving firms to the present day.

Looking back with the knowledge and trained eye of the present day it is amusing to think of the earlier attempts and what ideas were had in regard to the requirements of a fine line screen plate. Among the first partially successful attempts was to rule a copper plate diagonally one way with fine lines, then from this to pull an impression on fine white enamelled paper and with black ink; then from this to make a negative by the wet or collodion process, having perfectly opaque lines with transparent spaces, the negative so made being used as a screen plate.

It may be said that at this stage the operator's hopes were mountain high, and success seemingly assured, only to be dashed to the ground by unexpected and unforeseen obstacles in the path.

First, the extreme difficulty of obtaining a perfect impression having pure black lines without breaks or flaws, and second, an insurmountable obstacle in copying from the impressions that was entirely lost sight of in the anxiety to obtain a perfect ruling, this obstacle being no less than the nature of the lens itself. To explain, the view of the ruled impression, on a *direct* line from the lens—*i.e.*, the centre of the impression, the lines and spaces were in proportion as the original in the resulting negative, but *receding* from the centre, the spaces were less wide in proportion to the distance from the centre; the result being that from a large ruling a comparatively small screen could be produced of any value. Oh! the hopes dashed to the ground! It is only the enthusiastic workers that can understand studying and toiling buoyed up by fond hopes and fancies—at the last to find some obstacle, not seen or calculated on, seemingly insurmountable. Success, though, is a succession of failures, and this was the first real step to success. The next was to coat a perfectly flat or crystal plate glass with an opaque film, then to cut *through* this film lines of various thicknesses and number to the inch according to the character of the work intended for reproduction. When this was accomplished success was assured; it can readily be understood that lines so produced were perfect in proportion throughout the whole plate.

As to the nature of the film on the glass plate and its list of failures before perfection, it is out of the province of this paper to explain. Suffice it to say that the glass plate having been prepared with the film as described it is placed on a perfectly level bed plate of an engraver's ruling machine and fastened firmly in place.

In the operation of ruling the most extreme care is necessary. When once the machine is set in operation it must be kept going with an even, steady motion until the ruling is complete; any stoppage even for a short time will make a difference in the spacing at that particular place that can readily be detected on examination.

The cutting tools are diamond points made so as to cut through the film, but without cutting or scratching the glass. These tools are made to cut any width of line desired, and are the perfection of workmanship. It can be surmised they are very expensive. This screen plate placed in front of the sensitive plate in the camera or in connection with a transparent positive and reversed during exposure constituted the first real success in the making of half-tone negatives for the production of half-tone relief blocks.

Screens prepared as described were open to the objection of rapid deterioration, and especially if used in the camera plate-holder in front of the sensitive wet plate moist with the nitrate of silver solution of the bath. The solution would get on to the screen and in a short while would be spotted and useless. Various means were resorted to to overcome this serious difficulty, until at the present time the screens are cemented with a colourless cement, to a cover or protecting glass, that insures permanency to a great degree.

At the present day there are two well-known methods of manufacturing original screen plates. One is to rule or cut through an opaque film prepared on perfectly flat crystal plate glass; another is to prepare a wax ground on the same kind of glass, then to cut lines through this, after which, the glass (laid bare in lines) is etched to a certain depth with hydrofluoric acid; this gives ridges or furrows, which, after the glass is cleaned of the remaining wax, are filled with India ink. This gives a very intense black line with clear glass for space.

On a first cursory glance it would appear that plates so prepared would be more permanent or better adapted for the purposes intended, but such is not the case; there are serious difficulties attending their manufacture any way you will, and of the two well-known methods it would be a question to decide between.

The defects, as they exist in both methods, th manufacturers are no doubt endeavouring by all the skill at their command to overcome. It should also be borne in mind that at the present day the rapid advancement of this beautiful art demands a screen plate that only a few short years ago would have been considered a marvellous achievement.

So far this paper has only generally treated on the production of single line screen plates. The subjects now under consideration will be the proportion of opaque line to transparent space, and the manner of use, to give the best results.

The cross line screen plate, how produced, the proper proportion of opaque line to transparent space—manner of use and why, as a screen it is the best and most generally used.

The production of screens and the causes leading to it, &c., &c.

In the use of the single line plates, the effect of "lines and dots," "black lines," more or less wide, to represent the detail, and "dots" to represent the high-lights, as seen in the resulting etching or reproduction, is by far the most truthful and pleasing manner of reproducing with the single line plate.

Experience has taught that the best method to obtain this result is to use two single line screen plates of exactly same number of lines to inch, but one having the opaque line *three times* the *width* of the *transparent*, the other, the opaque and transparent lines equal, but running in the opposite direction.

The use of the screen would be as follows:—First, a special kit is devised for the camera plate-holder, that will hold the screen firmly and at a certain distance in *front* of the sensitive plate; the exposure is given of sufficient length of time to bring up all *detail* in the shadows, and the separation of the screen and sensitive plates should be such that the opaque lines, resulting in the *high-lights* of *negative* will be of the same width as the black lines; of the screen; in other words, the light from the high-lights of picture or positive, passing through the narrow openings of screen, *will spread* and make a black line in the negative (as above described), if the screen and sensitive plate are separated proper distance; while in the middle tones the black lines will be *more* or *less* wide, according as the detail is light or dark.

A negative made in the above manner, while giving an exact reproduction, would lack *contrast;* the high-lights being represented by very narrow black lines would not be *as light* as they should be; these lines must be *broken up into dots*, and to do this the screen with even lines must be brought into use. After the exposure (as described), the plate-holder is taken to the dark room, and placed with the back or door to the wall, remove the slide, take out the screen, and in its place put in the one having even lines. An exposure now should be given to *simply cross the lights*—no more, or the reproduction will lose in detail, and be too light.

The foregoing is the true principle of obtaining a correct reproduction of an original, by the use of single line screens. The elements, to secure success, being that the operator understands thoroughly the old wet plate or collodion process of photography, as all negatives for this or any engraving method should be made with wet plates.

In the use of the single line screens it will be seen there are two exposures; the plate-holder must be removed from the camera, taken to the dark room, and the screens changed. If the special kit holding the screen and sensitive plate is firmly held in place, and the plate-holder fits snug on the camera box, there will not be a particle of danger of movement of the sensitive plate already having one exposure, and the results, if properly done, are elegant. Yet, the time taken up in making the two exposures is considerable. The risks of getting a perfect negative are nearly doubled from what it would be if one exposure only was given; and in these days of sharp competition, when work must be finished with despatch, any saving of time is a great boon. Therefore a method devised of obtaining results equally as good, if not better, with *one exposure*, was a great advance.

The discovery of the *cross-line* screen plates marked a new era. The results were found to be, as a rule, far superior, and the chances of failure, from the fact of one exposure, considerably lessened.

How produced.

If the glass is covered with a wax ground, the lines cut through this, then etched with hydrofluoric acid (as described), then it would be necessary to rule either two plates in the same direction, and when brought face to face the lines would cross at right angles, or, after ruling the plate one way diagonally, to turn it about, and rule it the other way, so the lines would cross at right angles on the same plate; the latter process or method having the disadvantage of being liable in the etching to eat away the corners of the intersection, and not fill properly with the ink, most likely in isolated places, thus making the working of the plate somewhat uneven. In the other method, or where the lines are cut through an opaque film, success depends—first, on the evenness of the film; second, on its character; if too brittle, ragged edges would be the result; and, third, on the tools employed in cutting the lines; two plates would have to be ruled singly and in the same direction, then brought face to face.

The ruling machine used for the purpose must be as perfect as mechanical ingenuity can devise—any deviation in a line, no matter if a hundredth or one two-hundredth of an inch, can be instantly detected on examination.

The proportion of black line to transparent space in a cross-line screen:—

In reproducing a subject when the reduction is great or when the light parts are very strong as compared with the shadows, a screen in which the proportion of opaque lines predominate would give the best result, but the most generally useful screen would be prepared as follows: take two single line screens ruled exactly alike, diagonally, in the same direction and in which the opaque line is one half the width of the transparent, bring them together face to face; the lines will then cross at right angles and the transparent spaces will be equal in area to the opaque lines. This will make the most generally useful screen for all purposes; the manner of adapting the use of the screen to different subjects being well known to the professional negative maker.

The manner of use or action of the cross-line screen as will be seen from the foregoing description, the opaque lines cross at right angles making a *square* transparent opening. To illustrate the working: put the screen and sensitive plate in the plate-holder, separated the proper distance, place in position on the camera, point the lens to a *white card* and make the exposure, if properly timed, the light passing through the transparent openings of screen will not form square, but round black dots in the negative and will *join solidly* at the edges, leaving the *intersections of the line as a transparent* dot. This white card would then represent the high-lights of a picture; it is evident then, that in the detail these black dots in the negative would be more or less large according to the gradation of light and shade in the picture, while in parts of subject having black without detail, there should be no opaque dot whatever.

(*To be continued.*)

We have received from the Eastman Photographic Materials Company a copy of their new Catalogue, which differs from some other compilations of the kind in being well and artistically printed on the best of paper. The catalogue contains illustrated descriptions of the many different forms of "Kodak" cameras which are now being issued by the company, as well as of roll-holders, flash-lamps, tripod-stands, and everything else which may be desired by the most omnivorous of tourist photographers.

CORRESPONDENCE.

"COLLODION *v.* GELATINE."

Sir.—In your issue of last week, in an article, Collodion *v.* Gelatine, in which you review our plates, you make certain comments which we think call for a reply.

In the first place, we wish to say that the preamble of our prospectus is, in our opinion, incorrect, inasmuch as we have not yet placed upon the market our most sensitive plate. The prospectus was drawn up and printed a year ago, at a time when we expected to issue the three varieties in a few weeks.

In advancing from the experimental to the practical stage of our undertaking, we have met with difficulties and delays which have proved very trying—"at last," as you say, the plates have been placed upon the market.

Dr. Hill Norris has been engaged upon the question of sensitiveness for many months, and has succeeded in making experimentally a plate equal to 24·25 Warnerke, which we hope to be able to reproduce commercially before next season.

We also wish to point out that the term "ordinary," &c., is a very variable quantity. We have used ordinary plates of one make which have had four times the rapidity of another make, while our ordinary are made as slow as possible, to ensure the maximum brilliancy.

That under present circumstances our circular is misleading we fully admit, and it was only decided to send it out on account of its containing the requisite information for working the plates; at the same time we supplemented it with an exposure table, which, however, does not seem to have come before your notice.

In conclusion, Sir, we hope before long to send you some plates of much greater rapidity; and, in the meantime, we beg to thank you for your fair and impartial criticism.

The Birmingham Dry Collodion Plate and Film Co., Ltd.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

August 17*th*.—Mr. R. **Beckett** in the Chair.

The **Chairman** showed a negative with markings, and wished to have suggestions as to their cause and how to prevent them.

It was noticed that the gelatine appeared to be thinner where the image was partly removed, and that there was a well-defined edge to the markings, suggesting that the film had been scraped either in removing from the hypo bath or, at all events, whilst wet.

The **Chairman** could not accept this explanation, as the operation had been performed by himself, and the film had not been scraped.

Mr. H. S. **Fry** had once had a similar experience, and in this case he was quite clear that the markings did not exist on the plate when put up to dry, but came on afterwards.

Mr. W. D. **Welford** then read his report, as delegate to the Convention appointed by the Society. After some discussion, one sentence, which was considered to reflect upon some members of the Society and Convention, was eliminated and the report adopted.

Mr. **Haddon**, in moving the adoption of the report as revised, called especial attention to the advantage of combination in purchasing railway tickets, and proposed that for the next year's Convention at Dublin the members of the Association who intended visiting it should make arrangements beforehand so as to reap the advantage of the reduction made by the railway companies when a certain number of tickets were taken.

Mr. P. Everitt thought that the meetings of the Convention had never produced anything useful to photography, and that they ought to be called photographic picnics.

Mr. W. E. Debenham instanced a paper by Max Jaffe as the best on its subject at the time, and that had been sent to, and read at, a meeting of the Convention.

Other members concurred in the view that although, as at other gatherings, there were some profitless papers, there had also been valuable ones.

Mr. W. E. Debenham noticed a letter in a photographic journal warning photographers of the putting out of focus of certain lenses by the introduction of a colour-screen. He said that it was useful to have attention called to the fact, but that it had nothing to do with any particular lens or make of plate. When a plate of glass was interposed in the path of a cone of rays it caused the focus to be farther from the lens than if the space were occupied by air. The distance to which the plate must be moved was rather less than half the thickness of the interposed plate, though with such plates as were used for colour-screens half the thickness might be near enough. With the screen in front of the lens, except when used for copying near objects, no alteration of focus was noticeable. The simplest plan was to focus with the screen in position.

Brixton and Clapham Camera Club.

The last meeting of the above Club was held on Tuesday, August 15th, the chair being taken by Mr. F. F. Buckle.

Mr. Belton, representing the Paget Plate Company, gave an interesting demonstration on the printing-out plates and opals of the company. The special methods of printing, both by means of special and ordinary frames, were explained. As regards the printing, Mr. Belton said it was a daylight process, as the plates were very slow. The opals are of two qualities—matt and glazed. On the former the printing is done on the matt side, and, on the latter, on the glazed side. The process is precisely the same as for gelatino-bromide paper; but owing to subsequent reduction in the fixing bath, printing should be deep, the rule being the colder the tones desired the deeper the printing. When using the combined bath for toning the first washing may be dispensed with; but, with separate baths, the washing should be thorough, say in seven or eight changes of water. Density and colour must be judged by reflected light, it being remembered that prints dry darker and colder than they appear when wet. When finished Mr. Belton recommended mounting the prints under glass, as they are then less liable to damage from dirt. They may, however, be mounted and used as transparencies. Printing of lantern slides may be performed in an ordinary frame, and the judging of density will not necessitate the removal of the plate owing to the thinness of the film.

At the conclusion of the practical demonstration, several plates and opals having been toned and fixed in combined and separate baths, Mr. Belton passed the slides through the Club lantern, and the tones were very satisfactory.

A vote of thanks was proposed by Mr. Dockree, seconded by Mr. Butler, and carried unanimously.

Mr. Levett attended for the purpose of affording instruction to members requiring same.

Next meeting, September 5th—Mr. W. H. Harrison, "Some Useful Photographic Standards."

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

M. C. C.—The fogging of an emulsion in unskilled hands may be due to a variety of causes—such as impurity of water or chemicals, or too high a temperature during the ripening process. In the ammonia-nitrate method it is not safe to raise the temperature above 120° Fahr. A description of Henderson's cold emulsion process will be found in the journals of about eight years back.

Jerome.—There are no restrictions as to the use of hand cameras in Belgium so far as streets and public places are concerned.

Sheepshanks, J.—Hypo will fix collodion plates as well as will cyanide, and it is preferable to employ it on account of its non-poisonous character. The plates require perhaps a little more thorough washing, but that is the only disadvantage to which we can point.

Cheap Jack.—For waterproofing a wooden dish, a solution of asphaltum in benzole is better than the resin and beeswax compound often suggested, for the reason that the latter, with soda compounds, forms a soapy combination which is extremely inconvenient and disagreeable.

J. K.—The pits on the surface of the set emulsion are probably due to a trace of grease or to some other impurity of the gelatine. It is bad economy to employ cheap gelatine.

M.—Rain water will do at a pinch, but it is not so good as distilled. It should be boiled and filtered before use.

Muckross.—Lithographic ink suitable for collotype work can now be had at many places in London and elsewhere. There is no occasion to send abroad for it.

P. N.—Use the common clearing solution of alum and citric acid, or alum to which a few drops of hydrochloric acid have been added.

H. H.—Hydroquinone will give a green tone with chloride plates, although the same developer will give a good black with bromide. Why not try the old ferrous oxalate? There is nothing better.

Josser.—The idea has been patented more than once, as you can find out for yourself by consulting the abstracts at the Patent Office.

N. M.—Messrs. Marion & Co. would, no doubt, advise you on the point to your great advantage.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

15,383. Otto Hellstern, 145, Crystal Palace Road, East Dulwich, London, "An Improved Process and Combination of Ingredients for the Formation and Transfer of Photographic Images."—*August 12th*, 1893.

15,400. Paul Eugene Mallet, 4, South Street, Finsbury, London, "Improvements in Cam-freed Photographic Apparatus."—*August 12th*, 1893.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1826. SEPTEMBER 1, 1893.

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NOTES.

PHOTOGRAPHY has had its fair share of rogues, who have from time to time endeavoured, under the pretence of introducing a new process, or improving an old one, to impose upon the unwary. With the exposure of the portrait-for-nothing dodge, the photographic swindlers are for a time quiet, and other occupations seem to be attracting their attention. Only the other day, a young lady was prevailed upon to give £4 for a pair of steel-framed spectacles which were practically worthless. The excuse for asking such a high price for them was that they were heavily charged with electricity.

If we were to enumerate the number of different articles which are coupled with the magic name "electricity" before being dangled before the eyes of a confiding public, we should have little space to spare for any other matter. Only a short time ago, we were shown by a wholesale dealer a small locket arrangement containing a tiny electro-magnet, which, without battery or any other source of electric energy, was reputed to cure all kinds of diseases, and was selling by the thousand.

It is amusing, but somewhat sad, to see the public imposed upon in this way. At the same time, it must be remembered that if the public would only keep its eye open, and look occasionally into the technical papers, it would be safe-guarded against such impostures. Here, for instance, is an extract from a report which has appeared in many papers concerning certain experiments with a powerful magnetic current, showing that the effect upon the animal economy is simply *nil*. After describing experiments with a dog and a boy, the report says:

"Then the experimenters themselves and their men took turns in lying down on a board placed between the poles of a huge magnet, with the current alternately turned on and off. One observer would hold the wrists of the subject, and take sphygmographic tracings of the pulse. The second observer would observe the respiration, and the operator would turn the current on and off. No changes were observed in the tracings, or in the respiration, or in any other way. One subject held a steel screw in his hands, while he could tell from its attraction whether the current was on in the magnets. He had no sensations of any other kind. The observers concluded that the human organism is in no manner affected by the most powerful magnets known, and that the brain and the nerves get no sensations or impulses from the magnets."

THE *Moniteur* publishes as a novelty a process for enlarging photographic films without enlarging apparatus. The method is familiar enough in England, and depends upon the stretching of a film loosened by hydrofluoric acid. The formula for the stretching solution is given as follows:—

Hydrofluoric acid	1 part.
Citric acid	4 parts.
Glycerine	1 part.
Acetic acid (glacial)	1 part.
Water	32 parts.

All by weight. The unvarnished film laid in this solution gradually detaches itself from the plate, and enlarges itself at the same time. A final rinse in water while the film is transferred to a larger plate concludes the operation.

In photo-mechanical work, where the transference of a film for reversal is so often necessary, it is difficult to remove a film without slightly enlarging it. This, although sometimes an advantage, is often a serious drawback, and a solution which would detach the film, and at the same time would not increase its area to the slightest degree, would be acceptable, and would probably meet with a ready sale. It would be a comparatively easy matter to produce such a solution if any experimentalist would give his attention to the matter.

We do not now hear much of luminous paint. A few years ago it was well be-puffed and advertised, and made some little sensation. The newspaper scribes published such remarkable accounts of what it was capable of, that people began to think that a compound had been found which would at once do away with all kinds of artificial light, and would turn night into day. But luminous paint, however interesting as a curiosity, quickly lost its luminosity, and, if used in a damp situation, made its presence unpleasantly felt by giving off sulphuretted hydrogen. We know of one case where the visitors were frightened away from an exhibition in which luminous paint played a principal part, because of the horrid smell, which they immediately associated with bad drainage.

But luminous paint is occasionally useful to the photographer for experimental purposes, as well as for making a backing for transparent positives. These luminous pictures are very effective in a darkened room, and as a recipe for the paint has lately appeared it may be useful to quote it. Pure calcium sulphide is the basis of the paint. It will give a phosphorescent light of a yellow colour ; but after being raised to a red heat and a small quantity of a bismuth salt added to it, the light given out is violet in tone. The paint is made by mixing a pound of this prepared calcium with one ounce of glycerine, half a pound of gelatine, and a quart of hot water. The paint is applied hot, and if used for outdoor work must receive a coat of protective varnish.

Lord Rayleigh, in a letter to *Nature* commenting upon the announcement that it is in contemplation to establish a special photographic telescope at the Cambridge Observatory, asks whether astronomers have duly considered the facilities afforded by modern photography. After alluding to the advantages presented by the use of orthochromatic plates, he writes :—

> "The question that I wish to ask is, whether the time has not come to accommodate the photographic plates to the telescopes, rather than the telescopes to the plates. It is possible that plates already in the market may not exactly meet the requirements of the case ; but I feel sure that a tithe of the sums lavished upon instruments would put us in possession of plates suitable for object-glasses that have been designed for visual purposes. There would be no difficulty even in studying the requirements of a particular instrument, over or under corrected as the case might be.
>
> "A doubt may arise whether plates so adjusted would be as sensitive as those now in use. Probably Captain Abney, or some other authority, could give the required information. For some astronomical purposes a moderate loss of sensitiveness could hardly be of much consequence ; for others, doubtless it would be a serious matter."

Mr. Snowden Ward, in his paper read at the Chicago Congress, did not mention by name one of the earliest photographic societies, known as the American Daguerre Association, and formed in New York in July, 1851. It is interesting to look back to the rules of this society. They were of the most elaborate and stringent character, and doubtless it was soon discovered they were unworkable. The society had a recording secretary and a corresponding secretary. It had a Discretionary Committee, a Finance Committee, and a Printing Committee. It had also a Board of Honour to decide all differences not coming within the reach of the bye-laws. There were also numerous fines and penalties. But "high tone" was evidently aimed at, for section 2 of article 8 laid it down that none but practical artists of high moral and artistic standing should be members of the Association, while section 3 ordained that no person should be eligible for membership who publicly advertised low-priced pictures by signs or other means. The Association naturally was composed of only practical photographers.

An old photographer was reported the other day to have said that actresses make better pictures than other women, because they do not care for a photograph that looks exactly like them. A private individual wants a picture as like her as possible. "If she has a mole," said he, "she wants that mole to show. With an actress we should be obliged to sit her so as not to show her disfigurement." If this be true, all we can say is the experience of this old photographer must have been very different from that of most men. Ordinary lady sitters are not any fonder of having their defects shown up than are actresses.

The true traveller and explorer is no doubt born and not made ; but there is no reason why he should not go in for a little preliminary training, which would not only save him trouble, but add immeasurably to the value of his wanderings. The French, who are nothing if not systematic, have recognised the desirability of this, and the professors of the Paris Natural History Museum have instituted a course of instruction for travellers, which, among other matters, includes photography. Too many travellers purchase photographic apparatus and materials as they would purchase a carpet-bag. It does not occur to them that knowledge and experience are necessary. A few lessons in the studio and dark room, the development of a plate more or less satisfactorily, and they consider themselves proficient. But photography in a studio, under the eye of the teacher, is a very different matter from photography in the field, and when left to one's own resources. Of course the traveller gains his experience as time goes on ; but while gaining this experience he not only wastes materials difficult to be replaced, but wastes his opportunities.

LATITUDE IN EXPOSURE AND SPEED OF PLATES.

BY F. HURTER, PH.D., AND V. C. DRIFFIELD.

(*Concluded from page* 540.)

We now come to a description of the apparatus we use for making speed determinations. Diagram No. 3 shows the form in which we use it. A is the candle; B is the dark slide containing the strip of plate of which the charcteristic curve is to be determined; C marks the position occupied by the dark slide during exposure; and D is the revolving disc, by means of which the varying exposures are given; and as this disc forms the most important part of the apparatus, we will proceed to describe it in detail. The disc is preferably made of a sheet of metal, but may be cut out of cardboard. It is 11 inches in diameter, and diagram No. 4 will serve to show how it is perforated in order to yield a series of nine exposures, each double the preceding one. The length of the strip we use for a determination is that of a quarter-plate, or 4¼ inches. This length, divided into ten equal parts, gives the width of each successive step in the perforations of the disc. Nine parts only are required for the exposures, the tenth being protected from light in the dark slide during the exposure, so as to provide what we term the "fog strips." It will be seen that the angular apertures of the first perforation is 180°, produced by cutting out two entire quadrants of the circle, the next has an angular aperture of 90° or one quadrant, the next of 45°, and so on, the angular aperture of each successive perforation being halved till the ninth is reached. These apertures, of course, require to be cut with the greatest accuracy, and the disc, when finished, should be coated with dead black paint. It should then be mounted on a central spindle, which can be caused to revolve with considerable rapidity by some suitable mechanical arrangement. We, ourselves, called into requisition for the purpose an old sewing-machine stand, which permits the disc to be driven by the foot.

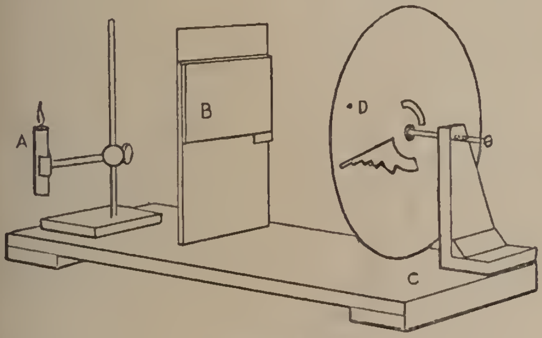

Diagram 3.

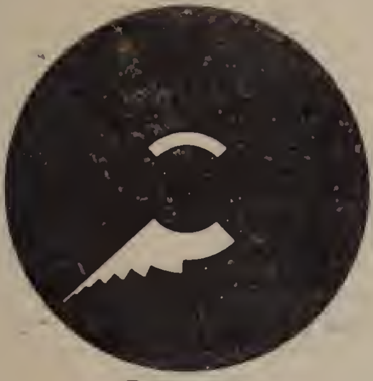

Diagram 4.

Having completed our description of the apparatus, we will next describe the actual operation of making this determination. First of all, as to the plate. If a plate be examined by placing it between the eye and the red lamp, it will be found that the opacity of the film falls off at the edges. The edges should, therefore, be scrupulously avoided, and the strip should be cut from the centre of the plate, or, at any rate, well away from the margin. The operation of cutting the plate should be conducted as quickly as possible, and as far away as possible from the red light, so as to avoid all fogging action of the light upon the plate. The width of the strip may conveniently be made about one inch. When the plate is securely placed in the dark slide the latter is placed in its position behind the disc. The distance from the candle to the place occupied by the plate is carefully adjusted, and the candle is lighted and trimmed. When the flame has reached the requisite height the exposure may commence. The disc is caused to revolve, and, at a given moment, the slide protecting the plate is drawn, and the exposure continued for the requisite length of time.

Now, as to the best range of exposures to decide upon in the case of a plate of the speed of which we know nothing, we should advise a series commencing with 80 cms., down to 0·312 cms. This range will be found to include as much of the characteristic curve of the majority of commercial plates as is required for a speed determination. A little consideration of the revolving disc, however, will show that, in order to give an actual maximum exposure of 80 cms., it will be necessary to continue the exposure for twice 80, or 160 seconds, the candle being placed at a distance of one metre from the plate. The reason of this is that the actual maximum exposure only proceeds during half the revolution of the disc; the light only reaching the plate during the passage across it of 180° out of the 360°. Though we prefer to work with the candle at a distance of one metre from the plate, it may be brought nearer to it if it be desired to curtail the exposure. At a distance of 0·707 metre, the light of the candle is equal to 2 cms., and, at a distance of half a metre, it is equal to 4 cms.

Having exposed the strip, we next proceed to develop it; and here we must say a word or two upon the subject of the developer. We do this knowing perfectly well that we shall meet with considerable opposition; but we, nevertheless, again assert that, for all ordinary photographic work, there is no developer superior to ferrous oxalate. We prefer it because of the uniformity of the colour of the silver deposited by it, a point of very great importance when we come to the operations of printing and enlarging by developing processes, in which the exposure is arrived at by calculation: we prefer it because we never yet found a plate with which it disagreed, and this is more than can be said of other developers. It will also develop an old plate which may have been carelessly laid by for years; while, with another developer, it would be hopeless to obtain a passable result. We prefer ferrous oxalate because, of all developers, it is least liable to attack silver salts which have not been acted upon by the light, and because it will not lend itself to the production of foggy messes. We do not wish, for a moment, to imply that other developers may not have their special uses; on the contrary, for example, we have found rodinal of the greatest value in the case of certain plates, when dealing with extremely short shutter exposures, and also in flash-light work.

However, to proceed with the operation of development. It is advisable that this operation be conducted at a fixed temperature, and we find 65° F. the best to adopt, as it is easily obtainable both in summer and winter. The developer itself should be brought to this temperature, and maintained at it by placing the developing dish in a water bath of the same temperature. The constituents of the developer are intimately mixed by stirring, and, at the moment of pouring on to the plate, the time is noted. The dish should only be rocked for a few moments in order to expel any air bubbles from the surface of the plate, and should then be covered up, so as to expose the plate no more to the red light than is absolutely necessary. Examination of the plate during development should be avoided as far as possible, as no red light whatever is safe in the case of even a fairly sensitive plate; and we believe that too frequent examination, prompted by curiosity or impatience, is to some extent responsible for alleged alterations in density ratios. About five or six minutes will, as a rule, be found the best length of time to continue development, in order to obtain that range of gradation most suitable for subsequent measurement. But, however long development may be continued, the time occupied should be carefully noted. The object of the fixed temperature, and the exact time a given plate takes to reach a certain development factor, is of the utmost importance if we afterwards desire, upon a similar plate, to produce another negative having a different range of density gradations.

After development, the strip is fixed and washed in the ordinary way, and, after washing, it is well to wipe the surface of the film gently with a plug of wetted cotton wool. The plate may be treated with alum if desirable, and both the alum and fixing baths should be fresh and perfectly clean. As the films of some plates are liable to loosen from the glass, when submitted to the heat of the lamp in the photometer, it is sometimes well to soak the plates for a few moments in a weak solution of glycerine after washing and before drying. When the plate is dry, and this may be hastened by means of alcohol if desired, the back of it should be thoroughly cleansed, and the film wiped with a silk handkerchief. It will now be found advantageous to define the dividing lines of the smaller densities with a pen and ink on the film. This will materially assist when we come to measure the plate, which operation may now be carried out. We do not here propose to enter into any description of our photometer and the method of using it: this will be found in our original paper in the *Journal of the Society of Chemical Industry*.

The nine different densities and the "fog strip" having been measured, and having deducted, from each exposure density, the density of the incipient fog of the plate, and that due to the glass and film as given by the "fog strip," we proceed to plot the characteristic curve on one of the skeleton diagrams supplied for the purpose by Messrs. Marion & Co. Assuming that our actual maximum exposure was 80 cms., we mark on the ordinate corresponding with this exposure this density, minus fog, due to the 80 cms. exposures; and so on till we reach the ordinate corresponding with exposure 0·312 cms. Having thus plotted all the nine densities, we take a piece of black thread and stretch it along that part of the curve which practically forms a straight line, and which indicates the position and extent of the correct period. This enables us to decide upon the position of the straight line before we actually draw it on the diagram. We now draw the line, and continue it till it intersects the inertia scale at the bottom of the diagram. The point at which the intersection takes place gives the inertia of the plate, which is then converted into the speed by dividing it into the constant 34. For example, inertia 1 = speed 34. We may now join up to either end of the correct period curves passing through the remaining points of the determination. The curve at the upper end will represent a portion of the period of over-exposure, and that at the lower end of the period of under-exposure: the whole representing the most important features of the characteristic curve. The details just described will be better understood by a reference to diagram No. 1.

We should here like to express the importance we attach to obtaining, in every speed determination, distinct evidence of all three periods. It is only by so doing that we can be quite certain as to the position of the correct period. It would be quite possible for the higher densities in a series of under-exposure gradations to be mistaken for a portion of the correct period in the case of a high development factor—in fact, we have known this mistake to be made when, had there been evidence of the three periods, mistake would have been rendered impossible.

We generally have some idea whether the plate we are about to examine is a rapid or a slow one, and, after a little experience, it is easy to decide upon that range of exposures which will most probably yield evidence of the three periods; but should we, in the case of a plate, of the speed of which we have no idea whatever, find that the exposures we have chosen yield a series of densities which leave room for doubt as to the position of the correct period, it will be necessary to make another determination, a more suitable range of exposures being chosen. The first determination will indicate whether a longer or a shorter exposure be desirable.

We must here call attention to a difficulty which may possibly arise; but its occurrence is fortunately so rare as to speak well for the perfection of the machinery used for coating the plates. If, on plotting the densities, they are found to lie irregularly, so as to preclude the possibility of drawing through them a regular curve, there is serious reason to suspect an unevenly coated plate. In such a case as this, the best thing to do is to cut another strip from the plate from which the first was taken, and running in the same direction of the plate as the first strip. The second strip should now be uniformly exposed to the candle, and developed; the exposure and development being so timed as to produce an easily measurable density of, say, 1·0. If the plates have been unevenly coated, the density of the second strip, when measured in different places, will be found to vary. As an example, we have been able to lay our hands upon the record of a case which occurred in our own experience. The irregular series of densities obtained in the first instance led us to make a second exposure as described, when we found that the density measured in different parts of the strip varied from 1·335 to 0·820. When we remember that this means that one part of the strip transmitted more than three times as much light as another, the serious nature of such a fault as inequality in the thickness of the film will be apparent.

Reference has been made several times to the development factor. It is beyond the scope of this paper, however, to enter fully into this subject; but, as the numerical value of this factor is one of the data to be derived from every speed determination, we will state how it is graphically ascertained. From the point 100 on the inertia scale of the skeleton diagram, a line, parallel to the straight portion of the characteristic curve, is projected till it intersects the development factor scale. The point of intersection gives the factor which expresses the extent to which the development of this particular plate was carried. It is best for the purpose of speed determination to aim at reaching a development factor of 1·0, or a little more. It will be seen, on referring to diagram No. 1, that the development factors of the two plates A and B are 1·18 and 1·52 respectively.

We believe we have now explained the method of making a speed determination in sufficient detail to enable an amateur to carry out the operation. We trust, however, that any amateurs who take the matter up will not content themselves with plotting the characteristic curve of a plate for the sole purpose of ascertaining its speed, but will take an interest in tracing, in the conformation of the curve, the results which they obtain in their photographic practice. It is a knowledge of this curve alone which can give the photographer complete control of the materials he employs. On some other occasion we hope to show more fully than heretofore the part which the characteristic curve plays in the calculation of the exposure for transparencies and printing processes generally, as also in the production of negatives and positives having a special range of gradation.

To Remove Stains of Aniline Dyes.—It is said that most aniline dye stains may be removed by first washing with a 5 per cent. solution of hydrochloric acid, following this by the application of commercial peroxide of hydrogen.

FINE LINE SCREEN PLATES AND THEIR USE.

BY M. WOLFE.

(*Concluded from page* 543.)

THE reproduction of screens and causes leading to it:—

The nature of screens reproduced by photographic means: the making of an original screen not only from the difficulty attending it, but the very expensive outfit required, makes it necessary to charge what would seem to be an exorbitant price for them. Nearly five years ago the writer of this conceived the idea of manufacturing screens, first making an original, then reproducing from it, at a price within the reach of any good engraver. At that time good workable screens could not be had at any cost, and the number of engravers in the United States making half-tone reproductions could be counted on the fingers of one hand. This seems an exaggeration, but it is literally true.

Look at the half-tone work of to-day and the countless numbers engaged in it; see the beautiful reproductions, artistic in every sense of the word, that are being done with the use of fine line screen plates and the half-tone process, and may I not feel a pardonable pride for my share in the advancement of this beautiful art?

The impossibility of obtaining original screen plates, and the great demand created for them as soon as their possibilities once became known, led to formulating the following reproduction process as worked by myself for the last four years:—

First. The original screen plate is made by the method described, of first coating a prepared glass with an opaque film; the lines are cut through this diagonally, one way only, the cut or transparent line one half the width of the opaque. Whether an original would have eighty or up to two hundred lines to the inch the relative proportions for practical working should be the same. The original being prepared, the next important step is the selection of the glass for the reproduced screens. It is absolutely necessary that the glass be crystal plate—perfectly flat, and without bubbles or scratches, and best if about one-tenth of an inch in thickness. This is prepared as collodion dry plates. It was not without many failures and discouragements before a suitable method could be formulated, one that would give an intense black line with clear glass for space, and, though finally got, yet it requires the most extreme care, or failure will result.

The original screen and sensitive collodion dry plates are placed in absolute contact; one exposure is made; the plate is then turned and another exposure given with the lines crossing at right angles. The plate is then developed, fixed, and intensified; and, after washing and drying, is ready for sealing to a cover or protecting glass.

In the method just given for reproducing by making two exposures to obtain the cross lines, the cross section, or where the lines cross, is somewhat enlarged so that the transparent opening is *not* exactly square, and for this reason—provided the lines are *perfectly opaque*, and the openings or spaces transparent, it makes a very much *better working* screen than the original itself, giving more of the effect of a well-shaded photograph, and without a certain harshness peculiar to a reproduction with a screen having the lines cross with sharp angles.

It is a notable fact that if a screen could be prepared with the transparent openings *round* and in the proper proportions, it would give the most pleasing effect and be much the easiest to work, but such screens could not be made commercially. I succeeded at one time by a process of copying to obtain such a screen, but it was before the days of sealing. I used it as long as I was able to preserve it; but from that day to this I have not had time to make another.

It might be argued that the film of collodion on a collodion dry plate would be some obstruction to the light, but if clear, as it should be, between the lines it will be as transparent as the glass itself, and so thin that it could not possibly be any obstruction.

I could readily enlarge on the subject at hand, but feel that already too much time has been taken and that my paper should come to a conclusion.

I thank you all for this opportunity of explaining principles that generally are very far from being understood, and I trust that in so doing I have not been irksome to you.—*The foregoing paper was read at the Congress of Photographers, Chicago, August*, 1893.

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PROBABLE ADVANTAGES IN ASTRONOMICAL PHOTOGRAPHY OF SHORT FOCUS LENSES.

BY REV. GEORGE M. SEARLE.

ACCORDING to a formula well known in ordinary terrestrial photography, the intensity of the light received on the plate from an illuminated object (or, if the illumination of the object be uniform in all its parts, the quantity of light received per square inch) is proportional to the square of the quotient resulting from the division of the diameter of the stop, or of the lens, if a simple combination be used without a stop, by the focal length. This formula plainly follows from the considerations that the total light received by the lens from a given angular area (say of sky) is proportional to the area of the lens, and that this light is distributed on a surface proportional to the square of the focal length.

It follows from this that, if the plates and development are the same, the same intensity (say of sky) will be obtained in photographs taken with the same exposure, and with lenses having the same proportion to their focal lengths, whatever the absolute dimensions of the lenses may be.

Within certain limits also we may assume that the intensity developed on the plate will be under the same circumstances proportional to the exposure; though it is well known that a limit can easily be reached, sooner of course for a brighter object than for a fainter, at which further exposure ceases to be useful, and becomes indeed injurious; and also that some time before this limit, the exposure is less of a factor than before.

Also we may assume, in the same way with due limits, that the intensity developed on a plate with the same exposure is proportional to the square of the quotient which has been given; and hence in general, that the intensity or strength of the photograph will be as the exposure multiplied by the square of this quotient; and hence that if we desire, as is the case in terrestrial photography, to produce, for instance, in the sky an intensity which is the best for the balance of the picture, the exposure should be proportional to the inverse square of the quotient.

If then we photograph the sky with two telescopes, one having, for instance, a twelve-inch lens with a fifteen-foot focus, the other a six-inch lens with a three-foot focus, the exposure to obtain the same density with the same plate and the same development needs to be only $\frac{36}{225}$ in the latter case of what is required in the former. And the sky will have to be $\frac{225}{36}$ as bright for the twelve inch as for the six, to be photographed in the same time. This is commonplace, everyday photography.

So far we can be reasonably sure of our results. But how can they be applied to stellar photography?

According to abstract theoretical considerations, the intensity of the light of the stars, if there be no absorption of light in space, is proportional to the intrinsic brilliancy of their surfaces, and is the same, no matter to what distance they are removed. Remove the sun to a million times its present distance, and it will look one trillionth part as bright as now; but its disc will be reduced in the same proportion.

If then the intensity of the light is the same, it would seem that all stars of the same intrinsic brilliancy should be photographed in the same time with the same telescope; and also that in this same time they would be photographed by all telescopes having the same proportions of diameter and focal length. Moreover, that time would be accessively short, as the time required for photographing the sun itself is.

These conclusions, however, are evidently false, being contrary to experience. Why are they false? What theoretical reason can be given?

One is quite obvious. It is that the images, or, as they they are called, spurious discs, of stars in a telescope are not proportional to the apparent magnitudes of the stars themselves. On this condition, which is verified in terrestrial photography, our conclusions of course depend. Take twice as much sky, giving twice as much light, and in the same camera, it covers twice as much plate. But owing to various causes the cone of rays does not come exactly to a point, even if emanating from a point. If we suppose a star to subtend an angle of 0".01, as the sun would, if removed to about 200,000 times its present distance, its image ought to cover a disc on the plate of a diameter of about $\frac{1}{20000000}$ part of the focal length; if the latter be twenty feet for example, the image should be about $\frac{1}{100000}$ part of an inch broad. Now, according to Dawes, the spurious disc of a star in a telescope of twenty feet focus, which we may perhaps assume would have a fifteen-inch object-glass, would be 0".3, or about $\frac{1}{700000}$ part of the focal length in diameter; that is $\frac{1}{33000}$ part of a foot or $\frac{1}{3000}$ of an inch. The effect on it, therefore, of the actual dimensions or of the nearness of the star is quite inappreciable. Hence, at least, as long as we use the same telescope, the common formula of photographs has no application to the stars. The images of all stars being practically of the same size in the same telescope, the intensity of their illuminations is simply proportional to the whole light received, or to the apparent quantity of light given by the star; and the exposures will be approximately in the inverse ratio of that light; and the spurious disc being so much larger than the theoretical image of ordinary photography, they all require quite a rather long exposure. The sun, or any other illuminated surface of perceptible dimensions, photographs quickly, because the spurious discs formed by each point of its surface overlap and strengthen each other; but the star has no such advantage.

The figures given by Mr. Dawes of course refer to the optical image; but may be taken approximately for the photographic image also.

Now, what will be our conclusion with regard to different telescopes? According to Mr. Dawes, the angular diameter of the spurious disc of a star is inversely as that of the object-glass; and, therefore, if we keep to one proportion between object-glass and focal length, inversely as the focal length; hence it would follow, since the real or linear diameter of the spurious disc is equal to its angular diameter multiplied by the focal length, that this real or linear diameter of the disc, in telescopes constructed on the usual proportions, is the same, say $\frac{1}{1000}$ of an inch in all cases. According to this, then, any telescope will illuminate this constant disc for any particular star with a light just in proportion to the area of its object-glass; and the time of exposure for any particular star will be approximately, inversely as the area of the object-glass.

This seems to be the rule usually assumed; and taken with the other previously obtained as to stars of different magnitude, would form a regular guide to exposure on stars in astronomical photography. It is simply that the exposure should be for various stars inversely as the product of their actinic brightness multiplied by the area of the object-glass used.

But the question arises whether the diameter of the spurious disc is independent of the ratio of the diameter of the lens to its focal length. If we shorten the focus, keeping the diameter of the lens the same, the disc must, it would seem, be altered; of what nature would the alteration be? Even if the disc is made, on the whole, somewhat larger, as one might naturally expect, still if the light were more concentrated towards its central portion, this ought to be photographically, and perhaps also optically, an advantage. With regard to the latter point, at any rate, experience seems to show that stars are more clearly and sharply visible with short-focus telescopes than with long-focussed ones of the same size of objective. The long-focus one magnifies more, of course with the same eye-piece, and ought to stand a higher power; but it is better to see a star sharply, if we want to measure its distance from another, than to have that distance on a larger scale, but not to see the star at all.

It may not be certain that short-focus telescopes have this optical advantage, but it is at least possible; and with regard to the photographic image, actual photographic experiments must settle the question better than observation can do for the optical image; for not only can the determination be made more quantitatively, but prejudice is also more removed by them. If experiments show that a satisfactory image is produced on any star in a shorter time with a short-focus telescope than with a long-focus one of the same diameter, or that with the same exposure a fainter star can be taken by it, its practical superiority for ordinary purposes is proved; and probably even for micrometric measurements the disadvantage of smaller dimensions would be more than made up for by the saving of time.

I have heard of a case in which it was stated that a ninth magnitude star was photographed with a telescope of six inches aperture and three feet focus in the same time that was required for a seventh magnitude with a telescope of twelve inches aperture and fifteen feet focus Now a seventh magnitude star is about 6¼ times as bright as a ninth; and if we take the square of the quotient mentioned in the beginning, we find that it is for the six-inch, $\frac{1}{36}$, and for the twelve-inch, $\frac{1}{225}$. According to the ordinary photographic formula then, the exposure with the six-inch should be the same as that with the twelve-inch on an object $\frac{225}{36}$ or 6¼ times as bright. In this case, therefore, it would seem that the ordinary formula of everyday photography would work; still it would probably be too much to assume it as a general law in stellar photography.

But there really seems to be no reason why it should not be the proper formula, not only for the sun, moon, and larger planets, but also for most nebulæ and comets. A nebula a minute of arc in diameter is too large for the consideration of the matter of spurious discs; and there is apparently no reason why it should not photograph according to the same laws as a piece of sky; if so, in this class of work, the superiority of the short-focus lens in the matter of exposure would be unquestionable. Its short focus would, of course, make the picture of the nebula smaller; but it can be enlarged, in a few minutes, as much as we please, with a copying camera.—*Astronomy and Astro-Physics.*

◆

Photographic Watermarks.—A German paper describes a method, which it appears to consider quite a new process, for imitating watermarks upon paper by means of photography. In the ordinary way paper receives its watermark from the wire-work mould in which the sheet is formed from the pulp. The imitation is brought about by submitting a sheet of paper to heavy pressure in combination with a gelatine relief. It is, indeed, a variation of the Woodbury process, and was actually contrived by the same prolific inventor very many years ago. The process gives wonderful results, the finest details of any picture being pressed into the paper. Where this pressure is greatest—*i.e.*, in the high lights of the picture—the paper becomes most transparent, while the shadows, represented by the hollows in the carbon relief, remain dark. This resurrection of an old process, which was more curious than commercially important, seems to be due to the untiring enterprise of our German neighbours, rather than to ignorance of Woodbury's hand in the matter.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, SEPTEMBER 1, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. IX.—AMATEURS AND PROFESSIONALS.

THE Photographic Society of Great Britain has recently attempted a good work in endeavouring to formulate a set of rules which should govern the proceedings of judges at exhibitions. These rules were made, it is true, by a small and scarcely representative meeting of those who, some time or other, have acted as judges; and it is unfortunate that the names of some of those who helped to make the laws do not appear in the official list of those who accept them, yet it is gratifying to find that twenty-three judges have signified their intention of upholding the rules at all future open exhibitions.

Although I cannot help disagreeing with one or two of these rules, and think some of the accompanying recommendations frivolous or feeble, I heartily concur with the principle, and am especially pleased to find that one of the rules runs as follows :—

"There shall be no distinction between amateur and professional."

This is a most important law. Of course, at present, it applies only to exhibitions, but we may hope it is the thin end of the wedge opening to better things. It is particularly gratifying to find that this rule has been agreed to by the President of the largest and most influential body of amateurs in the world, the Camera Club, also by the President of the P.S.G.B. which has among its members many professionals.

Perhaps the happy time will come when in other things than in exhibitions there will be no invidious distinctions, and those who make photographs will be content to call themselves photographers, and not only be proud of the title, but justify it in their works. But it won't be yet. At present the feeblest amateurs seem inclined to stand on their dignity more than ever, and the weakest professionals are even now accusing the amateurs of robbing them of their bread and cheese. I do not accuse the sane and sound members of either side of having anything to do with these accusations, or having, indeed, anything but the sincerest brotherly love for each other.

For many weeks during the summer a controversy has been waged in a contemporary on the old and still burning question of "Amateurs and Professionals." I have carefully studied these letters, and the foremost fact that struck me was the astounding ignorance of some photographers about the constitution of their own country. I have always thought we gloried in the fact that we are a free people. It is not to be denied that we are governed in a grandmotherly fashion ; we may not do this, that, and the other apparently innocent thing—not even the guileless socialist is allowed to annex his neighbour's property at present—and we cannot do anything barbarically autocratic. It is not yet in the power of the professional photographer to condemn the amateur to "something lingering, with boiling oil in it" ; to lifelong imprisonment in the dungeon beneath the castle moat, or even to a gentle turn on the rack ; yet some must think all these horrors possible if we are to believe they have faith in some of their suggestions for improving business. Let us run through the letters and pick out one or two of the suggestions for the suppression of the unfortunate amateur.

We must take for granted that the depression in business is due to the amateur, which I for one do not believe, except so far as a numerous profession is composed of amateurs (really the bottom of all the trouble) to whom the fatal facility of the gelatine plate has made photography an easier business of a kind than any of the handicrafts to which most of them have been trained. The *outside* amateur is perfectly harmless compared with the *inside* amateur—that is, those who without the proper qualifications have given up honourable trade for a doubtful profession.

One suggestion for wiping out the outside amateur is to register photographers, no one being allowed to call himself a photographer unless holding an Inland Revenue licence, the licence only to be granted after a test examination. It has been necessary to register some trades and professions for the good of the public; are we to range with the hawker or the doctor? I don't like to speak disrespectfully of any trade, but is not the chief use of the licensing of hawkers that the police may have their eye on them? Then, doctors and chemists may not pursue their callings without a diploma, but theirs are professions in which want of proficiency would be dangerous. What is there about photography that it should be licensed? The photographer is not dangerous; he may make his sitter very ugly indeed, without doing any material hurt to anything except his temper. The licensed victualler is not licensed for his own sweet pleasure. He is licensed, not to put too fine a point upon it, to keep him in order. Now the photographer, as I have said, is not at all a dangerous person, and it is not necessary to keep him out of mischief by Act of Parliament.

Amateurs, it is suggested, should not be allowed to buy poisons as freely as professionals. This recommendation is mean and illogical. The suggestor's grievance is that there are too many amateurs; why not then supply them with any quantity of poison—for personal use? Another amiable suggestion is to tax photographers so as to kill off the weak ones. Quite so. A capital scheme. How far down shall we kill? There are some men who would be glad to make the tax £1,000 a year, and so create a splendid monopoly. Others would willingly pay £100 a year—even this would cause great slaughter, and make good business for those who remained—but this would be legislating for the rich, which is out of fashion nowadays.

A National School of Instruction is recommended. None of the correspondents seem to recognise that it is technical instruction classes that create many amateurs who afterwards become incompetent professionals. They are taught the technical processes and then stranded high and dry where their education ought to begin. Nothing, in my opinion, but apprenticeship under a good and conscientious master can teach professional photography perfectly. It is, perhaps, costly and takes time, but saves money and time in the long run.

It seems to be the general opinion that amateur photographers must be bound down to the definition as applied to athletics and similar pursuits. I don't see the connection. Rigid rules have to be made by some of these societies to prevent fraud, which cannot apply to photography. Selling a few prints is not criminal, and I have always held that the mere fact of taking money for his work does not make a man a professional. The amateur who insists on a good price for his work—and some get prices that would make many a professional mouth water—does positive good by leading prices upwards out of the depths into which professionals have allowed them to fall. It is the shabby amateur who, under the mistaken notion that he is a philanthropist, gives away his work, charging only for the miserable cost of the materials, who does the mischief. But this matter of an amateur not being allowed to take money for his work cuts both ways. One of the correspondents very pertinently points out that many professional photographers are amateurs in other businesses, and poach on other preserves by combining photography with picture-dealing, hair-dressing, painting, framing, fancy-warehousing, tobacco-selling, and other trades, to which they have no more right than they have to prevent amateurs dealing in an amateur way.

The causes of depression are to be found within the profession, not without, except, indeed, that the greater ease of production may be put down to outsiders. In this the amateur has been a great sinner. It was that immortal cooking of his emulsion by an amateur that at one blow ruined professional photography and opened up the art to all; and his improvements have been the great cause of the increase in numbers in the professional ranks. Amateur recruits as a rule have attained just sufficient mechanical knowledge to produce work of the dead level of technical excellence of which the world is sick, but none whatever of the essential qualifications for successful portraiture. This want of all but mechanical knowledge accounts for the depression being almost entirely confined to middle-class business. There is no complaint from the highest class professional, nor the beach man. I have a theory for this with which some will not agree, but I may as well state it.

The happiest results in photography are the outcome of highest artistic skill, or, at the opposite end of the scale, accident. Highly cultivated ignorance only achieves the dead level of commonplace excellence (a remark which I cannot expect everybody to understand, and must be taken for what it is worth). The happiest expressions are those educed by those who have art at their finger-ends, or is seen on the portraits, desperately bad as photographs, of those who sit for sixpennyworth on the beach. The worst expressions are those on the portraits of those photographers who are so intent on their trifling chemical mysteries that they do not know, and perhaps do not care, how to "say Bo! to a goose."

Speculative business, such as free sittings, is justly given as tending to lower the profession. It belongs more to the calling of the cadger and the tout. So also does club work, which sometimes approaches perilously near to the "portrait-for-nothing" fraud. But I think the very meanest thing done is by some of the great London firms. To send operators round to country athletic, football, and cricket matches, robbing the little "local," is bad enough; but some of them go the length of forcing the local photographer to take negatives for them for a small sum, and reap most of the plunder for themselves. Any local who does not resist this business is doing himself and others serious mischief.

Now I come to a very real grievance: the reproduction of our portraits in the illustrated papers without recompense, and sometimes without acknowledgment. It used to be an honour to have our works engraved; it is an everyday matter now. I am afraid photographers are not generally aware that so great is the competition among the papers, that they *must* have our photographs and *will* pay for them if asked. Half-a-guinea is the usual price for a portrait, but a larger sum is often paid for scarce subjects. I have known £60 paid for the right to reproduce a photograph. Care should be taken to sell the right for the *one* paper only, or your work may go the round of the press through an electro company. Further use, further fee, should be the rule.

It is not worth while to go into further details. The great difficulty is the well-recognised one. Photography is a noble art in its highest phases, but it is also the easiest of all the means of making a small living, and, therefore, attracts in quantities those who are only fit to do bad work at low prices, without a care or thought for the progress or reputation of the means by which they live. Unfortunately they do make a miserable sufficiency, for who ever met with a man who had given up photography because it did not pay him as much as he was worth?

One of the most sensible contributions to the correspondence which originated this article, is by Mr. C. H. Hewitt, of King's Lynn. His letter, which is too long to quote, shows that his education has been more complete and fitted to his business than that of the superficial amateur scientist turned professional. He sums up the whole subject thus:—"We may blame the amateur, or the public taste, or anything else we like; but as Casca says, in Shakespeare's 'Julius Cæsar':—

> "'It is not in our stars, but in ourselves
> That we are underlings.'"

* * *

According to the *Photo Times* (New York) a photographer was, much to his surprise, lately accused of insulting one of his lady sitters. She complained that on the back of the portrait taken by him appeared the words, "The original of this is carefully preserved."

MR. IVES AND PHOTOCHROMY.

THE ubiquitous reporter has again been on the war-path. This time Mr. Ives is the victim. He is described as a somewhat delicate-looking man, with eyes that show the lines of patient study, a thin black beard, and the hand of a born experimenter. Mr. Ives says:—

"I have read M. Vidal's remarks, and several others besides—notably those of Dr. Vogel, by whom I have had the honour of being personally vilified."

"Why so?"

"Well, because I am inoffensive, perhaps, and not a member of a close corporation like the French savants."

Concerning the Lippmann-Lumière process, Mr. Ives said:—

"A scientific friend of mine, who has been to Paris to see it, says that the results are pure humbug. I have studied the process myself, and I am inclined to think that M. Vidal has either seen a miracle, or is stating what is not. The colours got by it are due to interference of light by thin films on plates backed with mercury. They are what we call irridescent simply, and are such as you can often see on the surface of stagnant pools. Even if they possessed no other drawbacks, the fact that white light in these photographs comes out a deep brown would be sufficient to condemn them; but it happens besides that the colours in the rest of the photograph are merely a matter of the length of exposure, so that, although, perhaps, once in the course of ten tries a tree may come out green, it is just as likely to be pink or blue, or anything else, in the remaining nine. The colours are an accidental effect, and vary according to the light in which they are looked at."

"How does M. Lippmann print his photographs?"

"They are not printed at all. By inclining the plate at a suitable angle to the light you can get a coloured effect; that is all. And the colour varies with the angle. Those beautiful greys and whites that M. Vidal spoke of were nothing more than the ordinary reflection of the sky off a glossy surface."

Mr. Ives continued:

"Heliochromy is not new. Mr. Collen, the Queen's painting master, suggested the idea of photographing three images to represent the three primary colours twenty-eight years ago, and various methods of carrying it out have been tried abroad by Cros and Du Hauron in France, and by Dr. Vogel in Germany. But they did not hit the true idea. It has taken me eight years to perfect my three-colour screens in such a way as to make each image, when taken, a true representation of one of the fundamental colour sensations, so that when the three were once more blended in a common image through similar screens, the actual colours of nature would be returned to the eye."

"And have you succeeded in this?"

"Look at these specimens."

Here Mr. Ives brought down his heliochromoscope—a small square box with an eye-piece, somewhat resembling a camera. After turning it towards the light, he slipped in front of it what appeared to be an ordinary photographic negative with three pictures on it arranged in trefoil. This, however, he asserted was not a negative, but a simple positive taken on glass instead of paper. The images were not coloured, but merely differed from one another in regard to the arrangement of light and shade. On putting one's eye to the eye-piece there appeared in full relief an absolutely perfect representation of a dish of fruit—glossy red apples, mottled yellow bananas, and a luscious bunch of green grapes covered with a tempting bloom that made one's mouth water more than all the efforts of Dutch genre painters could ever do. Several similar objects followed; then came photographs of coloured pictures, of oil paintings, of Swiss scenery in all the living colours of nature.

"How is it," one exclaimed in breathless amazement, "that the world knows nothing of this?"

"Perhaps because I am not quite ready to supply cameras to the world. I have only just succeeded in perfecting my own. However, they are very welcome to know all about the process, and how it is done. I have no secrets from them."

"Can you print your photographs in colours?"

"I can; but it is a difficult and expensive process Besides, the results are not nearly so beautiful as I can get with a little relief, and I have preferred to devote the greater part of my attention to reproducing them in this way. The Washington Museum possesses a set of lantern slides in colours, which I gave them. These were made by printing on gelatine, and cementing the images in layers in a particular way; the colour was not touched by hand."

"Can anyone take coloured photographs by your process, or does the apparatus need special adjustment?"

"None whatever. You take photographs in the ordinary manner, develop in the ordinary manner, and print in the ordinary manner, except that for purposes of heliochromy you print on to glass instead of paper. Here is my camera attachment. The light which comes from the object is split up automatically by an arrangement of transparent mirrors, so that part goes to a circle covered by a red screen, part to one covered by a green screen, and part to another covered by a blue screen."

"But white light is made up of more than three colours, is it not?"

"With three colours you can reproduce perfectly the *sensation* of white."

Here Mr. Ives projected on to a sheet from a lantern a red disc; to this he added a green disc, and then a blue disc, and, lo! the effect was a white disc.

"My photographic screens," he said, "are based upon Maxwell's diagram of the curves of colour sensation. The most remarkable fact shown by this diagram is that the rays which represent a fundamental colour sensation are not the ones which most powerfully excite that sensation. The *red* sensation is excited by all the spectrum rays from red to green, but most powerfully by the orange. Thus, in order to get the effect of the red sensation on my negative, I must use, not a simple red glass, but one which will admit (in definite proportions) the red, orange, yellow, and yellow-green spectrum rays. Similarly, to get the effect of the *green* sensation, I must admit on to my negative the joint action of the orange, yellow, yellow-green, and green-blue spectrum rays, but only in proportion to their power to excite that sensation. So with the *blue-violet* sensation. Allowance is, of course, made for the difference in sensitiveness of the eye and the photographic plate. No one has attempted to do this before, and that is where my work differs so widely from that of the French people, who have proceeded on these lines. They have simply been content to use the ordinary red, green, and blue-violet screens to produce the effect."

"In concentrating the three images back again into one image, do you use the same coloured screens?"

"No, that is rather strange. For this purpose the pure colours must be used, which represent the fundamental sensations."

"The heliochromoscope is arranged like the reverse of your camera, I suppose?"

"Practically it is. I use a pure coloured screen to each image, and the three images are superimposed at one focus by means of an arrangement of mirrors. The three rays, so to speak, are interfered with by the lights and shades on the photographic plate, through which the light passes, and the composite effect of these interferences is to produce the original colours of the object photographed. You will see, if no plate intervenes, the rays passing through the three coloured screens of the heliochromoscope produce a white disc merely."

"Does your camera reproduce every colour and shade in nature?"

"Certainly. That is more than the Lippmann process can claim. Or less, perhaps I should say; for the Lippmann process is certain to photograph in colours, whether the object is coloured or not. My camera does not do that. Here is a photograph of an ordinary photograph pasted on to bands of bright colours; you see the photograph remains in brown monochrome, while the bands are bright. One photographic worthy has described my process as 'looking at ordinary photographs through coloured glass'! I can't think why people should wish to detract from it. It is a perfectly honest scientific process, and I have not forced it on them. Since Captain Abney and others of the leading scientists have taken it up, however, this pettiness has ceased."

"Is colour photography your principal work?"

"No; it has been little more than one of my favourite hobbies. I am best known in America as the inventor of the first successful system of half-tone block engraving."

"Why do you call your process of colour photography by such a long name?"

"Because, popularly speaking, it is not colour photography at all, and I do not wish to mislead. Colour photography, in the sense of reproducing directly the colours of nature in a camera, I believe to be an impossibility; and certainly no such picture has ever been produced. Besides Lippmann's results, I have seen hand-painted affairs masquerading as colour photographs; and in Paris I went to see some marvellous results which I had read about in three columns of fulsome print, and found they were nothing but lithochrome reproductions from collotype plates, touched up by hand. I would not go a yard aside to see a 'coloured photograph' now."

"When do you expect to be ready to supply heliochromoscopes and chromograms?"

"Can't say. I have promised my friend Mr. Swan the first. I have had a great many requests. A dealer in Oriental rugs in America, when he saw my pictures, offered me a hundred dollars for a heliochromoscope and a set of photographs of the rugs that he used to carry about with him to show their colours and patterns. There are many uses that could be found for the instrument—quite as many, at all events, as there ever could be for the phonograph, which does the same service for sound as this for sight, and does it far less perfectly."—*The Photographic Times.*

ON CERTAIN TECHNICAL MATTERS RELATING TO STELLAR PHOTOGRAPHY.*

BY MAX WOLF.

THE CHANGE OF SENSITIVENESS IN DRY PLATES.

In no kind of photographic work is a knowledge of the sensitiveness of dry plates of such importance as in stellar photography. Generally, a photographer has merely to remove the cap of his lens, replace it, and the operation is complete. If the exposure proves to be too short he gives another and longer one; or he takes at once two plates with different exposures.

With the astronomer the case is very different. For him the chief part of the work lies between the opening and closing of the shutter, for in the interval he must keep his camera directed with the most careful attention, often for hours, to the moving stars, which the imperfect clockwork of his apparatus will only approximately follow. What that means only he who has tried it can tell. It is easy to imagine that under these circumstances a very sensitive plate is welcomed by the astronomer. The tedious work of exposure is proportionally shortened.

But it is not a pleasant experience to give an eight or nine hours, exposure to what is believed to be a highly sensitive plate, and then to find on development that the whole work has been thrown away, because the plate was really a quite insensitive one. The photographer who has had this experience repeated several times (as I have) very soon learns to become cautious. The only reliable test of sensitiveness, however, as I may here remark, is comparison by actual exposure to stars, the ordinary sensitometer tests being much too uncertain.

Special caution is necessary in dealing with fresh plates. In the early part of my work I always noticed that new plates received from the makers were uniformly less sensitive than the previous ones, and that it was necessary to expose them a much longer time, so that it almost seemed as if the manufacture of dry plates was retrograding. The plates which I principally used were those of Lumière, Schleussner, Beernaert, and Wratten and Wainwright. They all showed this apparent decrease of sensitiveness, the Lumière plates most strongly, those of Schleussner in a less degree. The peculiarity is so strongly marked that during the last winter I was hardly able to obtain the same objects on a new lot of Lumière plates that I had previously obtained with the last plates of the same make, even with a threefold greater exposure. Stars and nebulæ which I had photographed easily in one hour hardly appeared on the new plates after an exposure of three hours.

I had indeed known earlier than this that plates changed somewhat in sensitiveness when stored, but I could hardly expect that the change would amount to so much as a threefold increase; and yet it was so. After five months the new Lumière plates, at first so slow, were as sensitive as the preceding ones, and exceeded in sensitiveness all my other plates. A similar change took place in those of other makers. The orthochromatic plates seemed to have a smaller tendency to changes of this kind.

The sensitiveness does not by any means increase indefinitely with the time. On the contrary, it soon reaches a maximum, which persists for some time, and after this the sensitiveness diminishes. Hence it became a rule to test each kind of plate in order to determine when it was in its most sensitive condition.

For Lumière plates this time has been found to be from five to seven months after manufacture. By taking advantage of this fact much can be gained; sometimes, as I have said, an increase in sensitiveness of three or four times. Whether the period of ripening is always quite the same under similar processes of manufacture is somewhat doubtful, and the question must be left undecided.

From the foregoing the astronomer may take warning never to assume that plates made from the same emulsion are equally sensitive, if they are used at different times. The sensitiveness of the emulsion differed, in the case mentioned, according to the time when the exposure was made. For the same reason it is also very difficult to determine beforehand what exposure should be given in order to obtain stars of a certain magnitude. It is quite impossible to do this (leaving out of the question changes in the transparency of the air) without taking into account the age of the plates.

ON THE MOUNTING OF LARGE PHOTOGRAPHIC OBJECTIVES.

The proposition may be stated that, for testing a photographic objective, there is no method in any way so satisfactory as that of photographing stars. The faults of the objective are brought out conspicuously, so as to be visible at a glance, as they are by no other method.

It is especially astonishing to see how small the flat field is which the objective will define sharply. Portrait lenses, as well as wide-angles and aplanatics, have a really quite frightfully small field free from aberration. If a four-inch portrait combination of the best make will define perfectly a space $2\frac{1}{4}$ inches square without a stop, it must be regarded as performing very satisfactorily. A four-inch Euryscope by one of the best opticians, without a stop, does not by any means cover a plate $3\frac{1}{2}$ by $4\frac{3}{4}$ inches; and with an otherwise perfect five-inch aplanatic lens I could hardly exceed a plate of this size. So with the other qualities of objectives; and I will show at another time how the spherical aberration of an object-glass, in particular, can be determined by this method with great accuracy. I wish here to speak of another defect of object-glasses, which can be easily corrected, and which nevertheless, although it is very detrimental to sharpness even in ordinary photography, has hitherto received but little attention. I mean the distortion of an image due to pressure on the lenses by the cell in which they are mounted.

---

* The difficulties described by Dr. Wolf in connection with lenses have been generally met with in this country, probably for the reason that lenses designed for stellar photography have almost always been made by astronomical opticians, who are familiar with the precautions which must be observed in mounting large telescope objectives.

For my experiments on this subject I had a number of lenses, $2\frac{1}{2}$, 3, 4 and 5 inches in diameter, by the best makers, and I must say that all, without exception, showed this defect, in most cases very strongly.

Last year (for I will relate here the history of my sorrows), after I had used a number of smaller instruments for some time, I came into possession of a five-inch aplanatic lens, and mounted it on my refractor. The flange of its mounting was provided with screws, by which it was ordinarily attached to the camera. On my refractor there is, however, a strong brass bracket ($1\frac{1}{2}$ to 2 in. thick and weighing 30 lbs.), and on the front turned surface the flange of the mounting was secured by its screws, while the camera was fitted to the other side. The five-inch lens in its cell was then screwed into the mounting. After focussing, I tried it on the stars and obtained atrocious images.

With a perfect objective the photographic image of a star is, as is well known, a very small circular disc, which becomes larger and larger as the time of exposure is prolonged. Instead of small circles I obtained images which had an irregular appearance. At first I thought that the principal cause of these distorted images must be imperfect centering of the lenses, and made a series of investigations in this direction. I photographed a star several times with different adjustments for focus, and in this way obtained images, representing cross-sections of the cone of rays from the lens at different places, which were not circular, but angular, and quite irregular in shape. These experiments were very interesting, but still they did not lead in the right direction. The maker of the aplanatic lens, to whom I sent plates and copies, afterwards centered the lens in the most exact manner. I myself placed the plate exactly at right angles to the optical axis, but all in vain. It very soon appeared, however, that turning the lenses in their cell changed the position of the irregularities in the image. This at first led me again to regard imperfect centering as the cause of the defect, and I was much perplexed to know what I should do next, inasmuch as not the slightest error of centering could be detected by optical methods.

I now changed the object of the investigation; I tried other objectives in the same way, taking star photographs with a four-inch portrait combination of known excellence, by a Parisian maker, a $2\frac{1}{2}$ inch aplanatic made in South Germany, and a four-inch Euryscope. In this way I was soon led to the cause of the bad images. Not that these lenses did not have the same defects; on the contrary, the portrait lens depicted the stars as blurred, but still easily recognisable hexagons, the aplanatic lens as triangles, and the Euryscope as distorted pentagons. Now the mounting of the portrait lens was secured with six screws, that of the aplanatic with three, and that of the Euryscope with five screws.

I now took the five-inch aplanatic again, and screwed tightly home the five screws of its mounting. (Before, they were only loose, and strips of felt had been placed under them.) The result was that I obtained beautiful five-pointed stars.

But even when I left the screws so loose that the mounting of the aplanatic could rock, the points of the image could still be recognised, although they were greatly reduced in strength. It further became evident that some other distortion must be present, superposed on that caused by the screws, which obscured the latter when the screws were loose. It was for this reason that I was not at first able to recognise the fact that the distortion was caused by pressure on the glass.

In order to be certain of the extent to which the bending of the lenses was produced by the strain of the screws, a very thick mounting (a brass ring more than an inch thick) was made for the lenses, and secured loosely to the bracket with three screws, which passed through three slight projections, so that the mounting was supported at only three places. The lenses of the aplanatic were so much loosened in their cells that they could be made to rattle, in order to free them from any strain. The result was that the stars, aside from the distortion previously referred to, were triangular.

The cells of the lenses were then strengthened by the maker. I hoped further that by putting a large number of screws in the mounting, the angles of the image could be distributed, and would perhaps no longer be apparent. But the strengthening of the cells of the glasses was of no avail; six screws give six prominent angles, and nine screws just as distinctly nine angles. It should be borne in mind that the mounting was an inch thick, and that it was turned to fit the surface of the bracket; that the screws were always set up by hand and never with a screw-driver, and hence were certainly loose; that, finally, the lenses were loose enough to rattle in their cells, and nevertheless the glasses were bent out of shape.

In regard to the position of the star points, it should be noted that the points were always in the angles between the lines drawn from the centre to the screws. If, for example, the objective was secured with three screws, the star image was triangular, with the points lying in planes passing through the optical axis and bisecting the angles between the screw heads. Finally, in order to conclude these experiments, I resolved on an infinite number of points; that is, I soldered a heavy mounting to the bracket, and afterwards cut in it the thread for the cells of the aplanatic. When this was done, behold! there were no more points on the stars.

The independent distortion previously discovered still remained, however, and it was now possible to undertake the correction of this also.

Since the lenses appeared to be quite free in their cells, the pressure causing the distortion was apparently due to the unequal distribution of the weight of the lenses on the points of support. It was easy to trace and correct the fault in this case, from a consideration of the manner in which the telescope lenses were mounted. The cells were so arranged that the lenses rested on three points of their periphery, and were held in position by an elastic ring, which pressed them against the points of support. The same construction is applied with equal facility to portrait lenses. In the case of those aplanatics in which a small meniscus is cemented into a larger one its application is more difficult. A thin metal ring must then be cemented to the periphery of the larger meniscus, extending slightly inward over the smaller one—a construction which is also occasionally adopted for other reasons. The elastic ring is then made to press against this ring of metal.

In most cases it is naturally sufficient to alter the arrangement of the cells as just described, since the influence of the screws in the flange of the mounting is removed at the same time. My course was that offered by the character of the investigation. Later I made only this second change. In this manner I have so improved all my objectives that they give the circular star images required.

It should not be supposed that these distortions of an image are only of importance in astronomical photography, where great accuracy is necessary. The photographs of ordinary terrestrial objects were materially improved after I had mounted a rather large lens in such a manner that it was as free from strain as possible. The known inferiority of definition of large objectives as compared with smaller ones has its origin largely in this defect, which must be much more pronounced in large objectives, and larger stops could be used with plates of the same size, if more care were taken in mounting lenses in their cells.—*Eder's Jahrbuch für Photographie und Reproductionstechnik.*

ORTHOCHROMATIC PHOTOGRAPHY AND ITS PRACTICAL APPLICATION.

BY JOHN CARBUTT.

IT is very evident that the prominence given to orthochromatic photography at this World's Congress of Photographers reflects the growing interest in the use of colour-sensitive plates, not only to produce monochromatic results from nature and the production of the artist, but a close realisation of that long-sought desideratum—photographs in the colours of nature.

Since the first intimation by Col. Waterhouse for the use as a dye of eosine in collodion, to overcome the inability of the collodion process to render other than the blue and violet rays of the spectrum, scientists have worked assiduously to overcome the difficulties that were inherent in the old wet and the dry plate process of the present; and to no one are we so much indebted for the present success in orthochromatic photography than to Dr. Herman Vogel, of Berlin. We also owe much to the research of Mallman and Scolik, of Vienna, Bothamley, of England, and others we might mention, who, by their liberal contributions to the literature of orthochromatic photography, have done much to aid those who have made it their business to produce commercially the plates for the photographer's use.

The dyes now generally used, either by mixture with the emulsion before coating the glass plate or celluloid film, or dyeing the ordinary gelatine plate afterwards, are eosine, erythrosine, rose Bengal, and cyanine, the latter, we believe, but rarely used, owing to the unsaleable character of the plates made with it. To the above may be added azaline, a compound of Dr. Vogel's invention, said to consist of chinoline red and cyanine blue.

Orthochromatic photography has had its greatest advocates in Germany and Austria in the reproduction of works of art in monochrome. Since the introduction by myself in 1885 of orthochromatic plates, the use both by the amateur and professional photographer has had a steady growth. The intelligent amateur, as seems to be always the case on the introduction of any improvement in photography, was the first to test its merits; then the professional copyist of art works took hold of them, and their results now vie with the best products of Europe. The professional photographers of America were the last to take hold of and use the orthochromatic method, and the wonder to me is that they are not more used by them. One reason, I believe, is a want of acquaintance with the orthochromatic plate, and with many the idea prevails that a colour screen must be used under all circumstances. This arises, it seems to me, from an unwillingness on the part of photographers to read the literature provided for them on the subject, which, if read, would make many things plain that they remain in ignorance of, and, as is often the case, lose business for the want of the little knowledge so easily acquired.

It is, however, very pleasing for me, as a manufacturer of orthochromatic plates, to say that since 1891 the increased use of these plates has been very large as compared from the time of their introduction in America up to that date.

(*To be continued.*)

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

15,473. John Boultbee Brooks and James Harris Paul Gillard, Criterion Works, Great Charles Street, Birmingham, "Improvements in Photographic Positives and in Sensitive Emulsions therefor."—*August 15th*, 1893.

15,621. Charles Frederick Cross and Walter Nelson, 28, Southampton Buildings, Chancery Lane, London, "An Improvement in Photography."—*August 17th*, 1893.

15,658. Elizabeth Whitehead, 42, Anglesey Street, Lozells, Birmingham, "An Improvement in Photograph Stands or Easels."—*August 18th*, 1893.

15,666. Henry Cook, 34, Southampton Buildings, Chancery Lane, London, "Improvements in and in Connection with Photographic Shutters of the Character known as Blind Shutters."—*August 18th*, 1893.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

August 25th.—Mr. E. H. Bayston in the Chair.

Mr. Morgan, representing Messrs. Fuerst Bros., explained the working of metol and developed with it a plate which had been previously exposed. He claimed for the developer that it worked cleanly, developed with sufficient rapidity, could be used for several plates in succession, and that with an exposure only half that required for pyro a good result could be obtained. In support of the last proposition he showed two negatives and the prints therefrom. The negative developed with metol had only had half the exposure given to the pyro-developed one, but yet came out, he thought, quite as well. Development might be continued longer than with pyro, and there was absolutely no fear of fog, staining, or breaking up of the film. The solution once made up would keep for a very long time; but if made in two solutions, with the metol and alkali separate, they would keep practically indefinitely. The quality of negative given by metol was similar to that with amidol. The exposure must be considerably briefer than with pyro. For practical work the exposure was certainly not more than half that required with pyro, although pyro might develop quite as much detail, but that detail would be too weak to print.

Mr. W. E. Debenham said that if the statements they had heard were borne out by facts, metol would not only be of great use in shortening the necessary exposure, but would afford a refutation of Hurter and Driffield's theory that the ratio of gradation could not be affected by development. If a negative were taken with the shortest exposure that would produce good gradation when developed with pyro, and then another negative were taken with half that exposure and developed like the first, there would clearly be a difference in the ratio of gradation of the various parts making up the image. If now a third plate were given the same short exposure that the second one had received, and by developing with metol it gave a ratio of density (which is what would be necessary to produce an equally good negative) similar to that of the longer-exposed pyro-developed plate, there would clearly be a variation of density ratio due to development. It would, however, require careful experiment to establish the facts as claimed. Similar claims had been made for other developers, but he believed the result of strict comparison had not been to find anything which would shorten the exposure beyond what could be done with pyro.

Mr. P. Everitt said that of the two negatives shown the pyro one was yellow, and, therefore, not so suitable for printing on the gelatine chloride paper used as the metol-developed plate. With platinum paper he should expect the pyro negative to yield the better print of the two. He could not admit that there would be any difference in the ratio of gradation of the two plates instanced by Mr. Debenham, although one might print so much better than the other. Moreover, Messrs. Hurter and Driffield had said that with new developers their statements might have to be modified.

The Chairman said that so far as lessening exposure went the case was not proved. He had not found that he could do more with metol than with pyro. For paper and lantern slides it was very suitable.

Mr. Everitt would like to have a small committee appointed to investigate the action of metol compared with pyro.

Mr. S. H. Fry had come to the conclusion, after experiment, that there was certainly no difference in the exposure required with amidol, metol, and pyro. He was totally at variance with Mr. Morgan. He had a strong bias for a negative having a little non-actinic colour in the deposit. He thought, too, it was an error to advise the use of a developing solution over and over again. For the second plate it is not known how much developing energy was left in the solution, and it would be lessening by an unknown quantity continually.

Mr. Fuerst said that although many plates in succession might be developed in the solution, what they advised was that with a plate that had received an unknown exposure, it should be placed in an old solution, and it could be judged by the way in which it came up whether it would be desirable to place it in fresh developer or not.

Mr. R. P. Drage thought that the cleanliness of metol was of very great advantage to amateurs; he had seen magnificent negatives developed with metol.

Mr. Morgan certainly could not agree with Mr. Fry. He had many times tried two plates side by side with such an exposure that he only got a ghost with pyro, but a good negative with metol. He had recently developed eight half-plates in succession in the same two ounces of developer, and with photographers of experience present, and no one could say which was which.

Hackney Photographic Society.

Weekly Meeting, held on Tuesday, August 22nd.—Mr. Beckett in the Chair.

Mr. Roder showed a print he had toned, using carb. of soda; but it was not clear.

Mr. T. H. Smith showed some work done on Nikko paper, with which he was much pleased.

Mr. Roofe had used metol, and obtained plenty of density.

Mr. Nunn complained of lack of colour in amidol.

Mr. Miller, of the South London Society, then gave an interesting account of photographic mirrors, finally concluding with a demonstration of how to do it. For reversing work, mirrors are very useful; and for zinc an absolute necessity. Mirror-making was best done in the daylight. The glass must be chemically clean, and ought to be optically worked. The bath must be under 60° F.; distilled water alone must be used. The solutions used were 10 per cent. sol. white loaf sugar in distilled water; add to it one-tenth part ordinary alcohol and ½ per cent. nitric acid. Take 3 oz. of solution and add 4 oz. distilled water, and to this in turn 7 drs. reducing solution, made up by 10 per cent. sol. nitrate of silver. Add drop by drop to bath mentioned until precipitate is formed, which redissolve by gradually adding ammonia. Then add ¾ oz. of 10 per cent. freshly-made sol of caustic potash. Then add more ammonia, as before; and, when cleared, is ready for use. In twenty minutes, glass will be coated, which must be first washed in acid, followed by distilled water, and dried in blotting paper.

Arrangements for September, 1893.

5th.—Open Night. (Members are requested to bring up questions, &c.)

12th.—"Failures." (Members will please bring failures for discussion thereon.)

16th.—Excursion to Kew (by boat). (Hand Camera Day.) (Meet at Old Swan Pier at 2. Tea at Richmond, and return by train.)

19th.—"Members'" Lantern Night.

25th.—Bromide Enlarging. R. Beckett.

The Exhibition Committee have decided that, upon a requisition of six members (not less), a class will be made (in accordance with their ideas); but suggests those making such request should club together to defray expense of award.

Morley Hall has been secured for the exhibition for October 17th, 18th, and 19th. Members' classes will be:—(1) Not previously Medalled. (2) Lantern Slides. (3) Hand Camera Picture. (Enlargements permitted.) (4) "Excursion" Class.

Birmingham Photographic Society.

Ordinary Meeting, August 22nd.—The President, Sir J. B. Stone, in the Chair.—About thirty members present.

The President distributed the prizes and certificates gained at the last annual exhibition to the successful competitors. In the course of a few well-chosen remarks he said that personally he deprecated the giving of any prizes from the point of view that it was almost impossible for judges, however skilled, to decide which were the absolutely best pictures—some being superior in technique, some in artistic feeling. Let photography be a useful record, not a mere striving after prizes. He congratulated the members on the second Warwickshire Survey Exhibition now being held in the Corporation Art Gallery, and bade them continue with this useful movement.

A hearty vote of thanks to the President was carried by acclamation.

Ashton-under-Lyne Photographic Society.

Ramble, September 2nd, 1893, to Bakewell, for Haddon Hall and Lathkill Dale (ladies invited). Leader: Dr. A. Hamilton. Train from Guide Bridge at 9.18 a.m. Members are requested to provide themselves with lunch; but the President requests the party to take tea with him at Bakewell before leaving for home. In order to make suitable arrangements it is desirable to know how many intend going, on or before August 30th.

In re Hand Camera and Lantern Review Lantern Slide Competition:—

August 30th.—The Secretary will be in attendance at the Rooms for the purpose of trying members' slides with the lantern from 8 to 10 p.m.

September 4th.—Members competing for places in the Society's six sets are requested to send in their slides to the Secretary at the Rooms on this day. They will be judged during the following week by Mr. Whitfield, of Manchester, and the Society's six sets selected.

September 14th.—Exhibition of all the above slides at the Rooms at eight o'clock.

CORRESPONDENCE.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

Sir,—I shall be glad if you will allow me to reply publicly to the inquiries that are being made concerning the Congress of the Photographic Society and Affiliated Societies.

It is finally arranged that this Congress shall be held on the 10th, 11th, and 12th of October.

In a few days all the arrangements will be completed, and a full programme will be circulated as soon as possible after that. We shall be happy to send a copy of this programme to anyone who, not being a member of this Society or of one of the Affiliated Societies, sends a postcard request for it to 50, Great Russell Street, Bloomsbury, W.C.

Chapman Jones, Hon. Sec.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

T. M. J.—The difficulty named is new to us. We should think that the enamelled surface of the cards used is at fault, and will not stand the heat of the burnishing machine. We should advise you to try fresh samples of card.

Sims, J.—The proportion is not strictly correct, but one ounce of the salt, filled up to ten ounces with water, will practically amount to a ten per cent. solution.

M. C.—The most exhaustive work on the subject is Mason Jackson's "Pictorial Press, its Origin and Progress" (Hurst & Blackett). But you will find innumerable articles scattered through the magazines dealing with the same.

P. (Cambridge).—The pictures sent are collotypes, not Meisenbachs, and the difference between the two is quickly revealed by the aid of a magnifying glass.

Inquirer.—We always return rejected manuscripts, provided stamps are sent for the purpose, but we cannot undertake to do so unless this is done.

Beginner should have chosen a dull day for the subject sent. Sunlight has proved a positive disadvantage to him, and no retouching will cure the evil satisfactorily.

Mark, J.—If the lantern is placed at a much lower level than the bottom of the screen, distortion must arise, unless the screen is sloped forward, so as to squarely face the lens. Your best plan, if many exhibitions are to be given in the hall, would be to make a small platform so as to bring the lantern nearer the centre of the screen.

Streaky.—Your background is uneven because you have applied the distemper hot, and not thoroughly mingled the colour particles. In your next essay, wait until the colour is cold and in the form of thin jelly, which can be broken by the brush. In other words, follow the practice of a workman who knows how to colour-wash a ceiling.

A. A.—It will not pay you to make your own accessories, unless you have a stock of moulds and are versed in the arts of papier maché making, compo ornament work, and the like.

Janet.—Bamboo is at once the strongest and cheapest material for the purpose indicated.

C.—We shall be very pleased to receive the article for the forthcoming Year Book.

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1827. SEPTEMBER 8, 1893.

NOTES.

THE International Photographic Exhibition to be held in Bristol in December promises to be a great success. It must be remembered that this is not a mere local society's exhibition, but is what it professes to be—one which is open to all countries. We understand that applications for space have already been received from abroad, and that the walls of the Academy galleries are likely to be covered with examples from many different centres.

THE last International Exhibition at Bristol took place ten years ago, and it was considered by competent critics the largest and most representative show of the kind which up to that time had taken place. At one time the energetic Bristolians intended to hold a photographic exhibition triennially, but this idea had to be abandoned, owing to a difficulty about obtaining the Academy galleries at the required time. We are glad that in the present instance this difficulty has been obviated, and we trust that the Exhibition will be as successful as that of 1883.

THE French journal, *Science Illustré*, gives a recipe for what it calls "flexible glass," which may be of interest to those of an experimental turn of mind. It is not stated whether the material is intended as a support for the photographic film, but it would probably serve that purpose, for in composition it bears some resemblance to celluloid. Here is the formula: "Dissolve four to eight parts of pyroxyline in alcohol and ether in the proportion of a 1 per cent. solution Then add 2 to 4 per cent. of oil of rice or any other non-siccative oil, and 4 to 10 per cent. of resin or Canada balsam. Coat a plate of glass and dry in a warm current of air at 50° C. This will give a sheet of a durable, unbreakable, transparent substance, impervious to acids and alkalies, and less inflammable than ordinary collodion, and of any desired thickness or colour."

WE publish a formula such as this with some hesitation for the reason that we have not tried it, and we are unable to vouch for its efficacy. We have occasionally had complaints that published formulæ are very far from being the perfect things described by their authors, and we have ourselves more than once had occasion to regret the time and labour spent over compounding a troublesome mixture which proved to be of no use when completed.

EVERY winter brings many queries from enthusiastic amateurs respecting the best method of photographing snow scenes, and to those who are interested in such work, the paper read by Mrs. Main, at the Chicago Congress of photographers—which we reproduce in this issue, will be welcomed. Mrs. Main has often exhibited her beautiful snow studies at Pall Mall and elsewhere, and her work has been recognised by many a well-earned medal. She may, therefore, be considered as an authority on the subject of which she treats, and photographers will not go wrong in following her methods.

MRS. MAIN makes one remark that applies not alone to snow scenes, but to landscape work in general. She points out that at mid-day the light falls too directly on the subject to give the best results, but that in the early morning and afternoon the long soft shadows play their part, in giving half tones and breadth to the composition. A blue sky and blazing sun at mid-day give a flatness to a landscape which reduces what should be a picture to the likeness of a mere map. It is to the want of appreciation of this power of sunlight that many failures are due.

MAJOR BATTERSBY, dating from Barbadoes, sends to the *English Mechanic* an interesting photograph. It represents part of the sword of a garfish which was driven into the face of an unfortunate man as he was swimming and deprived him of the sight of one eye. Major Battersby points out that the bone was of a very non-actinic colour, and he adopted the expedient of giving a very long exposure and scraping away the film so as to get a background of clear glass. In this way he was able to represent the bone as pure white on a black ground, and suggests that the expedient may be found useful by others.

THE Sydney photographers are very much exercised over the question of prices. Three firms have reduced their charges considerably below what has hitherto been the average scale, and this has caused so much consternation that a meeting of photographers was summoned to discuss the matter. At this meeting, at which forty photographers attended, a member of one of the "cutting" firms was present, and explained that his attitude was the result of the action of several photographers who, five months ago, endeavoured to crush him; after which, according to the report, he "hastily quitted the meeting." The thirty-nine who were left then proceeded to devise remedies against ruinous competition, and passed resolutions which they can hardly hope to carry out practically.

FIRST of all they decided that there should be a minimum charge. They next denounced the issue of coupons and the presentation of pictures or other articles to sitters. Lastly, they framed a truly surprising rule; for although it is intended to be of the most stringent character, it is not worth the paper upon which it is written. The rule approves the signing of a "binding agreement," which is to operate for twelve months, by which any member not observing the previous resolutions shall be liable to a penalty of £25. How the payment of this sum is to be enforced the resolution does not say, possibly because no one knows.

IT is obvious that these resolutions do not touch the "cutting" firms, but simply apply to those photographers who choose to shackle themselves. The *Australian Photographic Journal* expresses regret at the passing of such a futile resolution, but it is difficult to see that the *Journal's* own remedy is any improvement. It first suggests the formation of a Sydney Photographic Protection Association—against which not a word can be said—and then goes on seriously to propose that, in the event of any photographer in Sydney declining to become a member, or not accepting the scale of charges drawn up by the Association, or who offers inducements to the public, steps shall be taken by the Association to supply photographs at prices lower than those of the offending person. For this purpose the Association shall open a central office for the receiving and distributing of orders, while the public shall be informed either by circular or advertisement of the reasons for taking such steps! What would London photographers think if such a proposal were made here?

IS not this squabbling about prices rather injurious to the interests of photography? How can its exponents lay claim to be artists when they wrangle with each other in the spirit of shopkeepers? How the world would stare if Sir John Millais, Mr. Ouless, and Mr. Herkomer were to threaten to undersell Mr. Smudge because Mr. Smudge's price for a portrait is £20, while theirs is £500! A photographer who does good and artistic work can always command his price, and can afford to be indifferent to what others charge.

THE gossippy paragraphist has made the discovery that Mr. Hoare, M.P. for Norwich, is always accompanied by a kodak when he attends the House of Commons. He does not use it to take snap-shots of Mr. Gladstone, Mr. Balfour, or Mr. Chamberlain, as one might suppose; nor does he keep it in readiness in case of a repetition of the recent free fight so as to furnish incontrovertible evidence. According to the ingenuous paragraph, he turns it upon the Parliamentary police, with the object of convicting them of any dereliction of duty in the way of lounging or inattention! Can this be true? It sounds neither probable nor possible.

WE are glad to hear that the Central Photographic Club has at last found suitable premises, not far from Charing Cross, and we hope soon to record that the members are in possession.

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LONDON WATER SUPPLY.—According to the official report for July, the common salt and the hardness have diminished, consequent on the more flooded state of the river. The organic carbon and oxygen required to oxidise it have increased, but only in the third decimal place—a negligable amount; and the brown colour is also slightly higher, all pointing to more organic matter in the July than in the June waters. At the same time the nitric acid has risen, showing that whatever the source of the organic matter might have been, the self-purifying power of the stream was well able to deal with the nitrogen present. The colour of the water points to a peaty origin for the organic matter, and this is borne out by the reduction in the amount of common salt, showing that the organic matter must have been chiefly of vegetable origin. Considering that July has experienced a sudden and excessive rainfall, following on one of the longest droughts on record, the excellent quality of the Metropolitan waters during the month points to a very high average standard of purity.

PRESENT AND FUTURE POSSIBILITIES OF PHOTOGRAPHY.

BY LEON VIDAL.

TO render an account of the present state of photography presents no difficulties whatever, the facts to its credit being recorded everywhere, so that we need only draw from recent sources—the very ancient facts being, so to speak, contemporaneous—in order to trace a complete history of photography up to the present hour, passing in review all its methods, all its countless applications.

And while we are desirous of justifying the very title of this paper, the circumstances allow to foot on the past, admitting it to be well known to all of us, in order to arrive at a conclusion as to future possibilities which we are able to foresee, combining the progress of photography itself with the science of to-day.

We are witnesses of a scientific progress so continuous and wonderful that it would be rash, indeed, even if aided by the most exalted imagination, to indicate the more and more extraordinary facts reserved to us even by the nearest future. New discoveries in the domain of general science will, without fail, result in unexpected photographic inventions, or in applications of photography to uses of which at the present time not the slightest idea can be formed. This is why we cannot approach the difficult subject which has been referred to us without a strong sentiment of our complete inability; in other words, this is a new world, inaccessible, which we set out to explore; we would have to give proof of the fervour of our imagination, of a kind of foresight, more than of true science. We would be well inspired if we could embark on a journey to the beautiful land of dreams to talk with the fairest fairies, and would return to describe our visions and to explain the most fantastic and most wonderful facts, while now we are obliged to appeal to reason—to the reason of to-day, it may be well understood, for our reason changes its basis at every moment according to the conclusions it has to draw from evidence and facts which yesterday it denied and thought wholly impossible.

But enough of philosophical contemplations, to which, however, we were prompted by a prudence which everyone will appreciate.

Being thus under the protection of the unforeseen, we may now venture suppositions as fantastic as possible, and become prophets without much merit of our own, since the past serves as guide in discovering future possibilities, which, hypothetical as they are, may be admissible, because it has been shown that we need not doubt anything in the course of scientific facts.

The past belongs nearly exclusively to monochromy, designating thus any method which, by the aid of light, produces an image of only one colour, whatever colour this may be, and even images with more than one colour, obtained by the aid of monochromy, each having its own colour.

The progress in this line has been very remarkable; especially since the production of single images took the place of a multiplicity of copies.

First, the paper prints obtained by a chemical process from one and the same plate; then the commercial prints, obtained in a mechanical way with plates prepared with the aid of light, have made photography one of the most ingenious and faithful auxiliaries of the art of illustrating all kinds of publications; in one word, the automatical means of copying the most wonderful and most instructive objects which have ever been imagined. On the other hand, the considerable increase of sensitiveness of the products exposed in the camera to the action of light, together with the invention of the dry film and the consequent portability and easy management, have caused an immense expansion of this art, which now, in every respect, is within the reach of all.

Science has, not less than arts, profited by the progress of photography, which made it an indispensable aid for its most delicate researches. To prove this we only need observe the excellent and unsurpassed services rendered by it to astronomy, to physics, to the study of the infinitely small, to the rapid and complete registration of all phenomena of light and motion, even of the wonderful rapidity of the minutest organisms. Indeed, it is at the same time an eye and a draughtsman. Like the eye, it is gifted with the highest rapidity of vision, so much so that it sees objects as if they were stationary, though they are alive with miraculous swiftness. Ah! it even sees what is invisible to the human eye! The stars bear witness—which, though unknown till now, have been discovered by the photographic eye in the depths of space, inaccessible to our most powerful telescopes. The reproduction of ultra-violet rays bears witness—which, for our power of vision, belong to the invisible.

As a draughtsman it is unrivalled; for nothing equals the definition of the lines it traces, the accuracy of the endless details it reproduces, the truth of which is such that it has the force of the evidence of a witness. We may add that it is also an artist. Indeed, thanks to entirely successful researches, we are able to obtain impressions on the sensitive medium by the aid of light of all colours, in proportion to the degree of luminosity of the different colours. This progress was achieved but slowly, and now that it has become an accomplished fact and practically within the reach of all, it gains ground slowly; but this can be only a question of time. Since we are able to sensitise our products so as to render them susceptible to impressions of all colours—giving them a perfect orthochromatism—it must also be possible to render them more sensitive to one colour than to another.

This possibility of selection must lead to the production of monochromes corresponding to every one of the principal colours, and consequently to the representation of the colour effect of an object or of nature, by superposition of the different monochromes, each having its own colour.

Therefore, photography, being the most skilful draughtsman and lithographer and the most admirable engraver, is also a wonderful expert of colours. But it is even more than this: it is already the artist of entire pieces of art, producing by one single action the colours of objects, much as it impresses the sensitive monochromatic plate.

And what a really wonderful idea—we begin to trace on the sensitive film the true image thrown into the camera, with its reality of detail and of colours. And this is our present position.

The development during more than fifty years has been nearly completed, because we have succeeded in passing through all possible phases of the art of designing and of its applications, attaining even to the art of painting. We say "attain"; by which is not meant that we have advanced in the subject of colour-photography to a point which we did not gain in monochromatic reproductions.

The most characteristic name which might be given to the present epoch is that of a new era. We are on the threshold of the art of polychromy. Indeed, in scientific applications the first step counts most, as perhaps it does in every other field. We have only to direct our attention to what is going on in the electric world, and then to proceed by analogy. There we have a point at which even the most fertile imagination could not pass beyond the scientific wonders of the future, even if its flight would lead us into the most fantastic dreams. No doubt electricity, with its power, its invisibility, its enormous rapidity of propogation, will become an ally of photography to aid in the creation of unexpected wonders. Already they speak of plates exposed and developed by the aid of an electric current. Edison is at work to construct an instrument intermediate between the phonograph and his kinetograph, which will enable us simultaneously to see the motions of a person, to hear his voice, his words, put in immediate harmony with his gesture, his attitude, the play of his lips and eyes, &c.

This has not only been taken into consideration but can be realised—probably it is realised—at this hour. But this is not all. By electricity similar effects may be and are (why not speak affirmatively, since such is our opinion ?) transmitted over a distance.

Thus, using the electric telegraph at the same time as telephone and as kinetograph, we will be able to communicate the complete effect of form, motion and sound to points far distant from the scene of action.

So far we have spoken of the form, which involves the idea of outline and detail of objects. Will a transmission of colours become possible ? Will we be able to complete the characteristics of an object by communicating through the electric wire not only its outline, but also its colours ?

Why should we not admit this possibility, extraordinary as it may seem ? How to get there ? This is the point which no one as yet knows, but, considering the present state of our scientific resources, based on the divisibility of matter, it does not seem impossible that we may arrive at results of this kind.

Passing in review the history of development of electricity, are we not convinced that about fifty years ago no one would have believed a prophet of the future, foretelling all the present wonders of the spark ?

We do not burn the wizards any more, at least in civilised countries, but they are still treated as fools.

Well ! We can no longer denounce folly in view of scientific predictions of the most revolutionary character. All we are allowed to say is this :

"*Who can tell? This may be very well possible.*" Thus we do not risk to engage in a dispute which sooner or later will be decided against us by the facts.

Speaking of the progress of photography which may be realised, we think at once of a higher sensitiveness, which would allow of instantaneous impressions even with the feeble light of interiors.

The sensitive product, or at least its vehicle, shall have the fineness of the collodion or albumen film.

The apparatus, perfect as it is, still shows an incessant tendency to improvement. From the standpoint of expanding the field of photography until it reaches every home, the idea will always be an apparatus essentially portable, of small weight and volume, permitting us to photograph without being observed, and containing a number of flexible films, sufficient for a large number of successive exposures.

(*To be continued.*)

ORTHOCHROMATIC PHOTOGRAPHY AND ITS PRACTICAL APPLICATION.

BY JOHN CARBUTT.

(*Concluded from page* 559.)

THE use of the colour-sensitive plate may be made under all conditions where a plain bromide plate has previously been employed. Its use is to harmonise contrasts, whether in the dress of the sitter or a view from nature. Greens and yellows are rendered with more detail and colour value, while blues and light-reds in drapery are given their proper colour value instead of being rendered lighter in the photograph, as is common on the ordinary gelatine plates.

The Colour Screen: when and how to use it.—For ordinary landscape work a very light yellow screen is all that is necessary ; a dark yellow or one of orange shade would falsify distance. The most suitable place for the colour screen is at the back of the lens board, sliding it in two grooved cleats, and should be placed in position when focussing. A screen of such a tint as this one would require an increased exposure of four to six times, depending on the state of the atmosphere : the yellower the light the shorter the exposure, and towards evening may be dispensed with : the value of a light-yellow screen is best shown where the vista is slightly hazy, or where the clouds are included in the view. Their outlines and forms will be much better rendered in the negative.

Use of Screens in Copying Paintings.—In this class of work the selection of the proper colour screen is of more importance than in landscape work, and the photographer should be provided with two or three, ranging in tint from a moderately strong yellow, medium and dark orange. Paintings are best photographed in direct sunlight, and by examining the painting through the colour screen it will not be difficult which one of the screens to select. For instance, take a modern French painting, consisting of light and brilliant colours, a yellow screen will answer ; but with a German or English painting, containing strong reds and dark blues and green, we would select an orange colour screen, and correspondingly increase the time of exposure. It may astonish some of you to learn that as much as ten minutes' exposure is given in direct sunlight on paintings that are old or painted in strong colours.

Photography in the Colours of Nature.—The objective point that has been striven after for years seems now near of being accomplished. I do not mean the actual photographing of either objects of nature in colours, but through and by the agency of orthochromatic plates. By the patient and scientific research of Dr. H. Vogel, of Berlin, and Frederick E. Ives, of Philadelphia, the first has achieved by triplicate negative and a like number of superimposed impressions reproductions of objects in colour so true to the originals in colour as to be quite a commercial success, and in this country is being carried out by Mr. Kurtz, of New York. Of Mr. Ives's work I have seen a great deal ; it differs in result from that of Dr. Vogel's in that the final picture is a triple image, a positive, on glass viewed through three-colour screen in an instrument invented by him, called the helichromoscope, and the object as viewed is seen in all of nature's brilliant colouring.

Coloured Photography, so called, is now achieved by making three negatives of the object on orthochromatic plates through three different colour screens—viz., violet, green, and red. I have here samples of such colour screens. In printing by the collotype, or half-tone block, as in Mr. Kurtz's work, inks in the three primary colours are used—viz., blue, red, and yellow. The proper selection of tints, however, is a very important matter. Reproductions by this method are shown in Mr. Kurtz's exhibit in the gallery, north end of Liberal Arts Building.

Developing of Orthochromatic Plates.—The same developer as used for the plain plate may be used for the colour-sensitive plate, except that we find it best to use it slightly diluted, as the colour-sensitive plate more readily takes on density, and the exposure should always be generous ; it is necessary in order to get full colour values.

Keeping Orthochromatic Plates.—A certain amount of doubt as to the keeping qualities of orthochromatic plates has been disseminated in this country. I can only say, with regard to those of my own make, that I have evidence of many cases where they have yielded perfect results from nine months to a year and more after leaving the factory. Plain plates orthochromatised by the bathing process, writers tell us, are not to be depended on over a few weeks. From past experience I am led to believe that plates from a proper orthochromatic emulsion have as good keeping qualities as the plain plates from same emulsion.

In conclusion, I may say that I am firm in the belief that colour-sensitive plates will in time replace the plain bromide plates, as the latter has the old wet collodion.

AMATEUR PHOTOGRAPHY.

BY CATHARINE WEED BARNES-WARD.

THE countless economic forces of the world, already great, are constantly receiving fresh accessions, while many of the old ones are becoming so blended as to seem new. From small beginnings, apparently unimportant discoveries in the arts and sciences have been evolved which have proved powerful factors in the world's progress. Among the forces which can interest, educate, and elevate human-kind, helping to train the brain, the eye, and the hand to uses heretofore unknown, let me place amateur photography. It has passed the stages of infancy and childhood, and is rapidly attaining the strength of maturity, possessing a depth of reserved energy for future growth which cannot be estimated. We are all familiar with the professional side of the art-science, but the amateur one is not so well known, and the funny column in the daily press would be shorn of much which passes for humour if jokes on the "camera fiend" were to be struck out. There is, however, a growing tendency to give the amateur proper consideration, and in this paper I wish the term "professional" to be understood as applying to those photographers who make the profession a means of livelihood, and "amateur" to those who reap no pecuniary benefit from the work. In many amateur camera societies the line, as excluding professionals, is very closely drawn—far more so than I think wise or necessary, while, on the other hand, though the liberal-minded men in the profession are ready to extend the right hand of fellowship to earnest amateur workers, a large number of professionals seem afraid that their business will be seriously injured by what can only prove, in a money point of view, an exceedingly limited competition. Very few amateurs accept pay for their work, and the professional who betrays jealousy of the former only reveals his own incapacity.

The two paths should converge and not diverge ; the professional and amateur interests are not necessarily antagonistic, and if the amateur looks down on the professional because of the latter's accepting money for his work he shows himself unworthy the name he claims. An amateur is, so the word implies, a lover of the pursuit he follows, but can he be justly so entitled when he makes a plaything of the work to which many a professional devotes his life faithfully and seriously ?

Amateurs are inclined to be a trifle illiberal in their conception of the work as a profession, though at the Photographic Convention of the United Kingdom in Edinburgh last year, which consisted of professionals, they apparently agreed to differ very much as if they had held separate sessions. We amateurs should always be ready to give a reason for the faith that is in us, realising that our branch of photography, but lately in leading-strings, can now lend a helping hand to its elder sister, the professional branch. The art-science is a dual entity bound by a tie as close as the Siamese twins, and those who pursue it, whether they belong to one or the other branch of the service, all march under the same banner.

The hobby, fad, or whatever one may term it, has already won a far higher position than is generally understood to be the case through the aid it is giving in affecting the growth of human enlightenment. Its value is being recognised in literature, medical research, astronomy, and a long series of mental labours, and as professionals usually, besides giving the bulk of their time to portraiture, *per se*, are also too pressed by the exigencies of daily routine work to deal much with experiment and research, credit for the most valuable discoveries can fairly be claimed by amateurs. Such labour can best be done by men who, not bound by the necessity of earning a livelihood, are struggling to wrest from nature the secrets which govern her onward impelling forces, and, balancing one agency against another, can fully measure and weigh in their mental scales the value of each and every one to the world.

Can we name in the same breath with these amateurs those who look upon photography merely as a means to kill time, and who, by no accident even, apply the slightest modicum of mental effort to understand the reasons of success or failure.

The list of the strictly scientific workers is a long and brilliant one, but it is being supplemented by a number of amateurs who, not having scientific training, are forced to advance slowly. These last are, however, utter unbelievers in luck, and their knowledge is won by patient, thoughtful application of cause to effect. Such knowledge is not merely theoretical. It is theory wedded to practice, translated into the world's language. The word "amateur" is like a certain robe which is said to cover a multitude of sins, and the veriest tyro of photography can in one sense rank with the most advanced worker, not at all to the advantage of the art-science as regards its position in the eyes of the world. There is so much poor work done, technically and artistically, by amateurs that the general judgment as to the work of all is greatly affected, and photography, which can be made to mean so much, is often forced into a lower place than is its just due. The Chicago Exposition has lent valuable aid in changing this status, and if those who follow the work for the work's sake will, taking advantage of this fact, demand for it from others unprejudiced judgment and the same respect they themselves gave it, the cause of general education will have made a great gain.

Artists—or I prefer the term painters—are greatly indebted in many cases to photography for valuable assistance, and many men of such eminence as Alma Tadema are broad-minded enough to acknowledge the fact. But there is an intimate blending of art and science in the work, and not all its followers are liberal enough to recognise the relative value of each.

The photographic camp is, every once in a while, therefore, turned into a modern tilt-yard, wherein artists and scientists fight each with long names, labouring to prove what is unprovable, which is the higher, art or science. It is the old story of the two knights fighting to prove whether the shield was of gold or silver to find at last that it had two sides, of which each knight had only seen one. If the advancement of photography as a means of education and culture is desired, why not agree that while the scientific side can exist in a measure without the artistic, the latter is of no value by itself, as its work must be done by scientific means, while the best results are attained by a judicious admixture of both? To many workers, however keen may be their artistic sense, the conquering of some obstinate point in chemistry or optics is fully as great a pleasure, and evolving a new one makes them supremely blest. There is a deep sense of triumphing over apparently insurmountable difficulties which to an eager searcher for knowledge gives an abiding satisfaction. The great value of such discoveries in photography lies, however, in their subsequent application as a means of enhancing the artistic beauty of a picture. In view of the vast growth of discovery during the latter part of this present century, we are in danger of forgetting that the ideal, as well as the real, imagination, as well as fact, needs development in a well-rounded, thoroughly-balanced mind.

Artists, as well as scientists, are to blame for this misunderstanding, for, however great may be the mental altitude of the latter, there is no scorn greater than that with which one who claims to have artistic gifts can look down upon those who, in his eyes, are less endowed. Hood might well lament the "rarity of Christian charity under the sun"; the lack of it is apparent in almost every field of human effort.

Amateurs are partly to blame for the idea which many people hold, that amateur photography is a mere amusement, a sort of jack-in-the-box performance. A camera, very often a cheap one with a single-view lens, is bought, and the owner starts out immediately to take portraits, make studies of animals, or, with almost sublime assurance, to photograph a dimly-lighted interior with no attention whatever to the disposition of furniture, colour of the walls, light, &c. These first attempts, naturally enough, proving failures, people say that photography, unless one is a professional, is of no real value, and thus the art itself suffers loss of credit. If by any chance the aforesaid beginner scores a success, his camera is immediately looked upon as a sort of reservoir from which pictures *ad libitum* can be drawn without money and without price. Very few, except the initiated, know the actual cost of a finished photograph, and I am constantly hearing the complaint that the amateur is underselling the professional. My own way of dealing with this question is to do all but the printing myself, and then let my sitters, or those for whom the view is taken, order the prints from some professional. This is, of course, when a number are desired, though, personally, it is much more preferable to do all the work myself, even if very few of the recipients understand the labour involved, or that individuality is possible in printing as in taking a picture. Not one person in ten knows that for all the various printing methods used by amateurs but one negative is required, or that its technical quality has anything to do with its usefulness.

The complaint once reached my ears that if a professional, whom I knew, would take as much pains with a certain amateur's printing as with the complainant's, the latter might be more successful at exhibitions. Such amateurs believe that what they are pleased to call genius atones for what they undervalue as mere technical excellence, but which is simply, in this case, being too lazy or too ignorant to do well the scientific part of the work. There are paintings and statues which really offend the eyesight, but for some inscrutable reason a poor photograph is ranked far lower in the scale of demerit. No one lens can be as capable of variety, no matter who uses it, as one brush in the hands of a skilful painter. But supposing the amateur can only afford one lens, ought the work itself to lose in credit on that account? The more careful his selection of lenses, the better and more varied will be his results.

As painters, therefore, adopt marine, landscapes, or figures as a special line of work let the amateur photographer do the same, and select carefully the lens which will best suit it. Only a very few amateurs understand wherein consists the difference between lenses or their extremely delicate mechanism, failing utterly to comprehend the strength which always resides in accurate knowledge of the powers with which we labour.

The lens and the brush are both products of human workmanship, and their true value lies in the brain which guides them.

The question of colour is, we are told, to be eventually in the power of the photographer as well as the painter, but, setting that aside, the trained artist in either branch can always have the delight of form, as regards beauty and strength, which is a far subtler, keener pleasure than the enjoyment of colour. Those only who love their work can begin to realise its possibilities. We smile indulgently in this prosaic century at the idea of Fra Angelico painting on bended knees a conception of heaven and the saints. We cannot reconcile reverence with analysis, preferring not to witness the play from in front, but to go behind the scenes and see the wires pulled. In so doing we are apt to forget that the great discoveries of science should not make us consider the human brain as merely a useful tool, but, in its wonderful ability, to design and invent as being closely allied to the great Creator of the world.

Let the amateur understand the instrument he uses from one end to the other, and be able, if necessary, to improve its capabilities, let him study the genesis and development of both wet and dry plates, and all the wonderful agencies which result in the finished print, constantly varying as they are, and then dare to look upon photography as a toy. Aside from its scientific, artistic, mechanical, or any other side, its great and abiding value lies in a combination of them all, and its application to any and all of the arts and sciences as a means of the truest culture. There is a grand, noble power in the amateur's hands if he looks on his work as a means of education, and it could be most effectively utilised by keen-witted educators as a means of teaching young people. If the rising generation could be persuaded to use their eyes as a means of absorbing into their mental consciousness a keener sense of the beautiful world in which they live instead of seeing life in a far less worthy sense, camera work will have won a right to high honour. It should have a place in every college course, notwithstanding the clamour which such a proceeding might cause. Some one must suffer by every progressive step in the world's education, but, after all, it is the greatest good of the greatest number which should be considered.

Only where attention is especially turned to the subject can it be realised what a place in our literature the camera is making for itself. Besides the various magazines devoted to its interests, many others and the daily press are according to it increasing notice. Travel, biography, and a host of other subjects are effectively illustrated by its aid both on paper and by means of lantern slides giving pleasure and instruction to thousands. The question of societies in this connection is an important one, but I will allude to it briefly. It is a part of my editorial work to print notices of society meetings, and hardly a week passes without some new organisation being formed. When these are used to advance the general growth of the art and not for personal credit, they can wield a very positive influence, and there is a place for them in the world.

As in other societies, the hardest work falls on a small number of members, but they have the true repayment of that deep satisfaction which only comes to those who work, not for general praise, but genuine self-improvement.

Amateur photography has the great advantage that its followers are confined to no age, sex, or condition of servitude.

The question of sex especially is rapidly becoming a past issue. It never should have been raised at all, and those who persist in clinging to it will at no late day find themselves far in the rear of the great army of civilisation.

There are altogether too few women who can not only do the work but tell how they do it in clear, comprehensible speech—many because they have never tried to do so; and let me urge upon them the thorough study of photography from start to finish as a far more satisfying occupation than most of what are called feminine accomplishments. As a mental and moral tone and a strong aid to general, broad culture it is invaluable to those who have learnt its power. There is no effort wasted, and everything the amateur does to advance his progress in the pursuit is generously returned to him.

In closing let me state what is, perhaps, the greatest value of amateur photography: its universality, its international character. It is a society whose members are of every nation, and such meetings as this present one go far to bind workers together. Let each compare his work and methods with others, avoid their faults but learn from their success, conceding to others the same devoted interest he gives to the work.

Amateur photography has a promising future and ever-widening horizon, and the deeper one explores its mysteries the stronger grows its hold upon him. It will be only a toy to those who look upon it as a toy, but of broad, high and deeply absorbing value to those who appreciate it.

Believe in your work, honour it with faithful service, ever ready to see your faults and to correct them, remembering always the words of Longfellow, at once a reproof and an inspiration: "We judge ourselves by what we feel capable of doing, while others judge us by what we have already done."—*Read at the World's Congress on Photography, August 2nd, 1893.*

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, SEPTEMBER 8, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PHOTOGRAPHING PET ANIMALS.

THE photographer is now and then called upon to take pictures of domestic animals, and those who have devoted themselves to the portraiture of the higher creation are not always happy or successful when requested to leave the well-trodden road for an unaccustomed bye-path. Many do not care to have anything to do with this class of work. They cannot very well consider it derogatory to their calling, as a surgeon would if summoned to do the work of a "vet"; they simply do not care for a sitter who will not obey their behests, and for a customer that may often be truly described as ugly.

There is no doubt at all that the man who succeeds best in photographing animals is one who devotes a great deal of attention to that class of work. He must be at the same time a lover of animals, and one who is capable of appreciating their best points. Let us, for example, take the case of that much-maligned creature, the bull-dog. Much nonsense has been written about photographing bull-dogs and the terrors that beset the unfortunate man who has such a sitter in front of his lens. Sometimes the story has been garnished by sketches which illustrate the performance, which generally ends in the destruction of the camera, and the flight of its owner minus a necessary part of his attire.

Such stories are founded altogether on a misconception of the bull-dog's nature, for in reality the creature is the very gentlest of all the dog tribe. He is the quietest and most manageable model the photographer can have; but, as in the case of all other domestic animals, the master should be present, not so much to keep him in order as to suggest attitudes which shall show off to the best advantage the "points" upon which breeders place such high store.

While we may rightly leave the authority in question to choose the best positions, the photographer must take under his own care the art part of the business. He must do his best to produce not a mere image of the animal, but a veritable picture having some life and animation about it. Many photographs of dogs which we have seen look as if they were taken from stuffed animals instead of lively, intelligent creatures, and this is due to a great extent to the common custom of making the creature squat upon a cushion. Surely some regard should be had to what we may be pardoned for calling the social position of the dog in choosing the accessories for the picture. Landseer has taught us that a pet spaniel may find a suitable resting place upon a cushion, that a deerhound should be identified with some trophies of the chase, while a mongrel cur of low degree finds fitting support on a doorstep. Cannot the photographer take a hint from such a master, and associate with his pictures of dogs something less incongruous than the ordinary furniture of the studio?

If one had a choice in the matter a studio is by no means the best place for photographing a dog or any other animal, with the exception, perhaps, of pet dogs whose pampered lives are passed on chairs and sofas. Some of the best pictures of dogs which we have seen were taken in the open air, and where done by a photographer who could more conveniently have performed the work in a studio. One, which is before us as we write, is the picture of a bull-dog taken in an ordinary back yard. The animal is seated on an inverted barrel—suggestive, perhaps, of Diogenes—with a weather-beaten door for a background. Another picture is of a handsome collie, with head erect, and hindquarters partly hidden in a mass of gorse—real growing verdure; for the picture was taken in the open air, a place being specially chosen for it by the careful worker.

It seems to us that a great deal might be done in this way by a man who devoted some little time to encouraging this class of business. When he could exhibit specimens, showing that he knew how to produce pictures of animals which were a little out of the common run, dog owners and others would be only too glad to avail themselves of his services. It is the common, humdrum, ordinary output that renders the public apathetic with regard to photographs. The best men have no need to complain of lack of work, for the reason that they show variety in their pictures, and do not stick to stereotyped models. Let the same energy of purpose be displayed in the portraiture of animals, and it would soon meet with its reward.

Of course it will not be worth a man's while to take pictures of the kind cited unless he be paid proportionately for the labour and time involved in the work. But what we mean to point out is that work of high quality would attract those who would pay an outside price for first-class work. The fancy prices paid in the present day for thorough-bred animals, amounting in many cases to enormous sums, indicate in a measure that owners would not object to pay a comparatively high fee for a good picture of the creature which they prize so highly. When owners are aware that the work can be done to their liking, there will be no lack of clients.

THE WIDE ANGLE CLUB.—VIII.

CONFERENCE OF JUDGES—CONVENTION DELEGATES' REPORT.

THE last meeting of this energetic and well-organised Club was, as regards attendance, quite a record for the summer months, no less than eight members putting in an appearance.

The President waited half an hour for the late-comers, and at half-past eight exactly rapped the table, whereat the other seven, who had been in deep discussion over a negative with holes in it, took their seats. After the usual business (which consisted of reading the minutes only) the following question was read from the question box :—" Does this Club agree or not to support the recommendations and rules drawn up by the judges in conclave assembled?" There were shouts of " Certainly not," &c., but the President, after calling for order, said that, provided too much time was not occupied by it, a discussion might prove of considerable utility to the whole photographic world, and he would set the ball rolling.

The Hon. Sec. : " Is it fair to do so when the judges are not here to defend themselves ? "

The President : " I advised the Hon. Sec. of the P.S.G.B. that the matter would certainly come up before this meeting of the Club, and advised him to arrange for about twenty of those judges to attend, but received no reply. After such—ah—discourteous treatment I think they must take their chance. When the—ah—thunder rolls in this Club, the lightning is not far away. We—ah—have now assumed a position that should ensure us of complete attention, and—ah—the whole photographic world benefit by our deliberations and decisions. The—ah—judges are not here, so we will impartially study their stupid rules and—ah—demolish them. Who are these men that they should pretend to dictate to Bumbletown ? We, the—ah—citizens of a great town, resent the interference. But as I know nothing about exhibitions and rules, I will leave it to some of you to rend them asunder, to—ah—reveal the innermost cavities of wickedness. Still, as the head of this great Club, I protest that we were in nowise consulted. It is an—ah—insult to Bumbletown and its Club. Perhaps the Exhibition Committee has something to say."

The Exhibition Committee (Mr. Honmention) : " Yes, lots. First of all, as to medals, what right have these blessed jokers to stop me getting medals ? I suppose they have got as many as they wants themselves, and now want to stop everyone else. Let 'em want. I puts it to you fellow-members, is it straight ? " (Loud cries of " No.")

Mr. Johns thought the rule as to the exclusion of persons from the room during judging most absurd. He, for instance, might be able to point out the beauties of his own pictures to the judges, which otherwise they might not see.

Mr. Proudlock pointed out that if Mr. Johns mentioned that he represented so great a body as the Wide Angle Club, no doubt the judges would make an exception in his case.

Mr. Jingle hoped the members would not be carried away by the seeking after medals. He had been converted to the "art side," and quite agreed that the everflowing tide of awards should be checked by such——(interruptions all round).

Mr. Fordwell thought the art business overdone and all rot, and that hand-camera work should be exempt from such rules as were laid down.

Finally the following resolution was unanimously passed :—" That whereas the Wide Angle Club, representing the photographic thought of the city of Bumbletown, has in nowise been consulted in the drawing up of the so-called code of rules, the Club do hereby declare them as absolutely void of authority as they are destitute of sense."

Mr. Honmention : " That will curl 'em up."

The President reported that, on behalf of the Club, he had attended the meeting of the Convention at Plymouth, and did not consider it up to much. His proposal that the next year's Convention should be held in Bumbletown was received with laughter — yes, downright laughter.

Mr. Putout : " They'll laugh the other sides of their mouths ere long."

The President certainly thought that Bumbletow could give them points upon the management of such an event. The first day was wet, and they would take measures against that in Bumbletown. It was impossible to go to all the excursions, as two or three were fixed for the same day and time. He objected to this strongly. The papers were too high-falutin or so serious that no one cared to tackle them, and when they did they were promptly bottled up owing to want of time. Why should he spend several pounds to go down to Plymouth, when he could read at his leisure, and in his own handsomely furnished drawing-room, all about them? He had something to say upon each paper that was read, and even upon some that were taken as read, but was spitefully sat upon every time. He hoped Bumbletown would resent such treatment of their Mayor. The only thing he enjoyed were the official receptions and the annual dinner, which enabled him to show that in the matter of evening dress Bumbletown was up to date. He always put his warpaint on two hours prior to the time of meeting, and walked about the streets of Plymouth to show what Bumbletown could do. He found, too, that others did the same, so that Plymouth were treated to a unique exhibition. He said the local people showed their ignorance or poverty by attending the receptions in morning dress. And although they tried to minimise the effect by putting a notice on the programme that they would do so, it was easy to see they hadn't got the clothes. Blarney of that sort was not good enough. Another proof was that he heard the Hon. Sec. asking a member if he had got the ticket. Thank goodness they had no pawnbroking establishment in Bumbletown. The only other enjoyable part was the stone gingerbeer and Plymouth gin. Altogether, he considered the Convention a total failure, and would remain so until they treated the Wide Angle Club with more respect.

Mr. Fordwell quite agreed. He said the President was not down for a speech at all, was never asked to sing, and was altogether kept in the background. Next time he hoped the Mayor would take down and wear his chain of office.

The President said he would, and would have it regilded for the occasion.

Mr. Southend did not know that evening dress was to be worn on three occasions, else he would certainly have gone down, as he had just devised a new waistcoat that enabled him to show two inches more shirt.

Mr. Brewer thought the Convention provided excellent opportunities for members to wear evening dress who at home had but few opportunities.

The President's report was duly adopted, and the meeting separated, conscious of having put a spoke in the wheel of the Conference rules, and of making great changes in the arrangements for next year's Convention.

PHOTOGRAPHIC WEATHER.—The almost uninterrupted sunshine which has been experienced during the spring, summer, and early autumn months has had the effect of making outdoor photographers very busy, and the output of pictures being much greater than usual, the coming exhibitions are likely to be inundated with applications for space. This is already the case with the Pall Mall Exhibition, which, at the moment of writing, has several hundred frames waiting approval. The Salon prospects are also good, and it is certain that at both exhibitions there will be many disappointed applicants for space.

THE DESIRABILITY OF AN INTERNATIONAL BUREAU,

ESTABLISHED (1) TO RECORD, (2) TO EXCHANGE PHOTOGRAPHIC NEGATIVES AND PRINTS.

BY W. JEROME HARRISON, F.G.S.

THE International Photographic Survey of the Heavens has now been in progress for six years, some thousands of negatives of the stars have been obtained, and when this survey is completed, the present face of the sky will be known with an accuracy which the astronomers of a pre-photographic age never dreamt of; and which will possibly enable the structure of the universe to be worked out: or at all events will afford a means of detecting the changes which we now know so frequently occur in the heavenly bodies.

But is not a photographic survey of the *face of the earth* at least as important as that of the celestial sphere?

Even such physical features as hills and coast lines change slowly but surely; the influence of man upon nature brings about far more rapid changes in the face of every country, while the successive generations of mankind pass away and leave but little more record of their physical peculiarities than the waves which beat in turn upon the seashore.

I have advocated a systematic photographic survey of the British Isles for many years, and the details of my scheme will be found especially in two papers:—

(*a*) "Notes upon a Proposed Photo-Survey of Warwickshire," read before the Birmingham Photographic Society in December, 1889. This was printed in the journals, and a thousand copies in pamphlet form were sent to all the photographic societies in the British Isles and in America.

(*b*) "Proposal for a National Photographic Record and Survey," read before the Photographic Society of Great Britain in May, 1892, and also printed as above.

In these papers the idea advanced was that in the British Isles the photographic societies of each *county* should band themselves together to secure, by the aid of photography, a more or less complete record of the physical features of each county, its fauna and its flora; of its architecture and archæology, its ethnology, &c. The aid of the leading men in science, literature, and art in each county was to be invited, who should be requested to furnish lists of places, persons, and things worthy of being grouped together to form this "true pictorial history of the present day." As a unit of work the sheets of the excellent Ordnance Survey map were taken. The sheets are on the scale of six inches to a mile; each sheet or map includes six square miles: upon them is marked every house, field, and tree.

One or more sheets of this map may be allotted annually to each photographer who expresses his willingness to take part in the task.

This photo-survey work is now being actively prosecuted in about eight English counties. In most cases the local free libraries and museums have been selected as the best places in which to deposit complete sets of prints. In the case of each of two counties (Warwickshire and Glamorganshire) the number of mounted prints of local places, &c., handed over to municipal authorities during last year (1892) exceeded one thousand in number.

It is greatly to be desired that this systematic survey work should be extended largely, both in England and in America.

It supplies a definite and useful object both to each photographic society, and to each and every member of such societies. In the British Isles we have now nearly three hundred photographic societies, and in the United States about two hundred.

There is no reason, however, why the "unattached" workers—men who belong to no society—should not also lend active aid in the work.

That such survey work will be continued and will prosper is obvious; but it seems a great pity that the results secured should be confined to the locality in which they are produced. And the main object of this paper is to point out how the usefulness of the scheme might be largely extended.

In each country there should be some central place—the British Museum, for example, for the British Isles, and the Smithsonian Institution for the United States—where a *record* of all negatives should be kept. This record should be limited to negatives (*a*) of good technical quality; (*b*) of local interest. A complete set of the prints from these negatives would also be stored at each of these centres. Such prints might either be furnished as gifts by the producers of the negatives, or they might be printed by the spcial staff of the central institution. They should be in either carbon or platinum.

As the workers in the majority of cases would be amateurs, it is probable that they would not object to handing over the negatives themselves to such central institutions; the negatives could then be stored in fire-proof and damp-proof rooms, and could be printed from by a special staff as desired.

Printed lists of negatives added annually should be published, and should be widely circulated among free libraries, museums, &c. A complete set of the prints should also be exchanged annually between the two great centres; one on each side of the Atlantic. It is certainly lamentable to consider how many thousands of valuable negatives are wasted annually for want of any method for their preservation and publication. Moreover, the establishment of some such scheme as is here advocated would lend an incentive to steady work by supplying an "object"; and this is just what nine out of ten of the great growing army of amateur photographers stand in need of.

And as each earnest worker "joins the majority," it would certainly be satisfactory to think that his store of fine negatives—accumulated at so much expense and with such pains—would be preserved and used, instead of being wasted and lost, as is at present almost invariably the case.

Exchange of Prints.

Every donor of negatives or of prints might be credited with a certain sum (according to the number and size of his contributions), and he should be allowed to select prints to this value from the published lists.

The working expenses of the scheme might be derived from such sources as (*a*) grant from Government; (*b*) subscriptions, the subscribers being allowed to select a certain number of prints in return; (*c*) sale of prints to the general public.

How many thousands there must be in the United States who would welcome the opportunity of examining the lists of British photographs which would be furnished to their local institution (library or museum, or municipal offices), and of selecting therefrom pictures of the village, town, or county from which they or their forefathers came; or of the places of which they read in history or in their daily paper. And we in England would many of us gladly hail similar opportunities of obtaining pictures of that wide land where our relations dwell, and of its wonderful physical phenomena.

Although such a scheme ought ultimately to be conducted at the national expense and by national institutions, yet it would probably be necessary to inaugurate the work on a smaller scale, so as to show its desirability and its possibilities. In England the Photographic Society of Great Britain is now endeavouring to affiliate to itself all the local societies; and if there is (or could be established) a similar union of societies on the American side, the matter could be negotiated between these two central institutions. Or direct relations might be opened up between societies of equal numbers (of members) and importance on either side of the Atlantic.

In conclusion the points to which I wish to draw attention are:

(1) In every county it is desirable that a photographic survey should be initiated. By the term "survey" I here mean a pictorial record of the state of things, physical and general, as now existing.

(2) In each country there should be (*a*) local depots containing complete sets of permanent photographic prints of the district; and (*b*) a central bureau containing negatives and prints.

(3) Facilities for the exchange (or purchase) of prints, &c., should be provided.

It has been well said that "all photographers are brothers," for it is certain that the study of this light science, though black art, tends to bring its fellow-workers together in no ordinary degree. Moreover, photography is more and more employed every day as a means of record in every branch of science and of art. It is of the utmost importance, then, that the students of this subject, both in England and in the United States, should become acquainted with each other's work, and should be able to avail themselves of it. If this principle be once recognised and approved of, then the details by which it can best be carried out might safely be left to a committee appointed by the Conference, should they see fit to do so.—*Read at the World's Congress on Photography, August,* 1893.

WINTER PHOTOGRAPHY IN THE ALPS.

BY ELIZABETH MAIN.

ALTHOUGH it is now twenty years or more since winter visitors first came to the Alps, few photographs have been preserved which render faithfully an Alpine valley in winter. The subjects ready to hand are varied and beautiful, yet somehow one seldom sees first-rate photographs of these high-lying districts under snow.

Those who have so kindly asked me to prepare this paper have greatly over-estimated my capacity for telling you some new thing. Still, bearing in mind the fact just referred to, it is evident that few persons have made a study of landscape photography at that season in the Alps, and thus, perhaps, the experience of one who has worked in that direction may be of some interest.

Those taking up this branch of their art are usually handicapped at the start by their belief in an article of faith—and of little else—laid down by the majority of English photographers, who declare that snow should never be photographed in a bright light. I dare say that in your sunnier climate, which must offer many more opportunities for experimenting in winter photography than does that of Great Britain, you have already discovered that brilliant sunshine is essential to the best results. But in case any among you still holds to the unsound maxim, I would ask him to bear in mind exactly what snow is ; that it is uniform in colour, almost smooth of surface, and on dull days without distinct outline against a grey sky. It must therefore be built up, so to speak, and modelled into that miracle of fairy delicacy and lightness which, under favourable conditions, it may become. We can have it at its best by working with suitable light at suitable hours, and now and then calling to our aid one or two artificial but inoffensive contrivances. At midday in winter the light falls too directly on the subject ; the lace-like tracery with its system of innumerable tiny snow crystals obtains no relief against the white robe, standing hard and stiff around rock and chalet. But go early in the morning or late in the afternoon and note the change. You will find in the long, soft shadows a thousand exquisite half tones. See how the highest and nearer lights are broken, and broken again by the thin veil of surface crystals, each with its perfect modelling, its tiny shade throwing up its star-like form. Look at the rounded, billowy flow of the snow where, half in sunshine, half in shadow, it sweeps around and over the inequalities of the ground. If there has been a mist, however slight, during the night, a fretwork of hoar-frost will cover all, and will complete the materials for as fine a subject as you can wish for.

You may find it desirable to use, in addition, the artificial contrivance to which I referred, and by shovelling some of the snow, or trampling out a track, break up any portion of the picture where the uniformity is too great.

And now, having placed your subject under the most favourable conditions, what is the best way of photographing it? My own experience leads me to think that slow plates are far the best, so that when used with a small stop, the exposure can be as prolonged as possible. I have always used Wratten and Wainwright's ordinary plates for this purpose, with one of Ross's portable symmetrical lenses, and with the smallest stop. I give under the conditions of light just described an exposure of two seconds. In developing I am careful to work up the plate very slowly and to carry the development very far, and when I finish I expect to find a range of density from excessive blackness to clear glass ; but though there must be no mistake about the quality of these two extremes, there must be very little of either, It is on the variety of the half tones that the success of the picture depends, and it is for this reason that, in photographing snow, correctness of exposure is of such prior importance ; and therefore a slow plate, allowing of more laxity in exposure than a rapid one, is far easier to work with. A plate under or over exposed can never, however skilful the development, give a perfect result if the picture is of a snow-covered landscape, as the half tones must suffer from the error. I have used the iron developer, eikonogen, and pyro and ammonia, and for snow have obtained the best results with the latter. I may add that when developing photographs of large moving figures, taken in winter in the Engadine, on our skating rink, I get the most successful pictures by allowing the plate to flash up at once under eikonogen and continuing the development until the principal object is hardly visible when viewed by transmitted light. For studies of this kind, I have had the best results with Lumière plates.

But I have digressed from my subject, because, probably, I had so very little to say. I have now all but done ; but before concluding I should like to draw your attention to the fact that very beautiful effects can be obtained in Alpine photography by facing the camera to the sun, which, of course, should be just *out* of the plate. For most subjects (water and clouds excepted) such lighting is rarely suitable, at any rate in so extreme a form, but with snow I have obtained most charming studies in this manner.

In response to so great a compliment as has been paid me in requesting me to write this paper, it would have been ungracious on my part to have refused, but I must ask you to forgive the very inadequate manner in which I have responded, for I know but little of the technical side of photography, and of the practical side am but self-taught, by my love of an art the beauty of which has always warmly attracted me.—*Read at the World's Congress on Photography, August*, 1893.

MR. HERBERT S. FRY has been appointed by the Paget Prize Plate Company to lecture before the various societies on the lantern slides and printing out processes introduced by that firm. A glance at the syllabus of the lectures induces us to say that societies will do well to arrange for Mr. Fry's attendance.

PHOTOGRAPHY IN AUSTRIA.

TRICOLOUR PRINTING AT THE IMPERIAL RUSSIAN STATE PAPER PRINTING OFFICE.

BY ARTHUR NADHERNY.[*]

DR. LENZ, a Privy Councillor, perceiving that the latest advances in photography and photo-chemistry might prove valuable at the State Paper Printing Office, obtained for that Department the services of Mr. Wm. Weissenberger, one of the most efficient chemists and professional photographers. Two large studios, one serving for small plates (18 × 24 cm.), and at the same time as a chemical laboratory, were arranged for his use. A Ploessl's electric projection apparatus, with a light screen of the required colour placed before it, is used to illuminate the objects.

The second studio is for plates up to 50 by 60 c.m. Four Siemen's arc lamps (60 volts) here serve to illuminate the objects.

A large camera by Warraus, with a focussing stand on rails, is employed for the work. Only collodion emulsion plates are used, and these are prepared by Weissenberger himself. All the work mentioned in the course of this article has been carried out by him with his own hands, according to his own system. The favourable results achieved are to be attributed chiefly to thorough knowledge and untiring zeal.

In retouching the negatives and preparing the lichtdruck plates, he was assisted very successfully by Mr. F. Serfert, chromo-lithographer to the Department.

Last September, after the technical journals had spoken of the Vogel Ulrich process, Mr. Weissenberger, at the suggestion of his Excellency, Director Lenz, began his first attempts with a small study of birds, which was a chromo-lithograph printed from fourteen stones with different colours.

From the single negatives were printed, without reversing and without any retouching, lichtdruck plates. These were then printed one on the top of the other in the lichtdruck press in the three colours, yellow (cadmium yellow), red (carmine lake), and blue (Prussian blue).

This success encouraged Mr. Weissenberger to further experiments with water-colour drawings. In order to bring the reproductions right reversed negatives were prepared.

The attempt to make use of stripped negatives failed, owing to the impossibility of obtaining the same dimensions for all three printing plates.

Like all other experimenters, Weissenberger prepared three negatives—for yellow, red, and blue respectively—by means of screens and the usual sensitisers, eosine silver and cyanine, which were then printed on lichtdruck plates, and printed one on the other in the order given—yellow, red, blue. Repeated experiments proved that this order produced the best effects.

It is not permissible for blue and yellow to follow next to each other, as that precludes the possibility of obtaining a fine violet. The reason of this is that colour being printed on colour an intimate mixing of all three tints takes place, and that of the two colours following directly one after the other is the prevalent one.

From the very beginning, Vogel's requirement was not fulfilled, that only such colouring agents should be used as are optically as near to the sensitiser as possible, because, according to Weissenberger's method—*e.g.*, in preparing the negative for red—all the red rays are absorbed by a suitable screen, for which reason there can be no fear of reflection by the sensitiser.

It has been found unnecessary to bring the printing colours into any relation, optical or chemical, to the respective sensitisers; but it is necessary to attune them to the originals, to choose them now nearer to the spectral primary colours, now farther from them, according to the brightness or dulness of the colours of the original.

A special colour mill is now being provided for the Department, and for the future the colours cadmium yellow, golden ochre, and madder lake will be employed.

In one reproduction black was substituted for blue, but nevertheless the blue parts of the original appear blue in the reproduction. In a winter landscape only three colours were necessary as against the fourteen of the chromo-lithograph original. Experiments are being made in the use of this kind of reproduction for book printing, and for photographs taken direct from nature. We will now proceed to give (1) a bird's eye view of tricolour printing in general, and (2) an exact description of the method of procedure in the Russian State Paper Office.

I.—Tricolour Printing in General.

Tricolour printing is not founded on any optical theory, but on the same principle as all other printing in colours. But its peculiarity consists in producing the same effect by printing only three photo-chemically prepared plates for the colours yellow, red, and blue; the same colour effect as in chromo lithography requires a much greater number of printing plates (twelve to twenty-five). It is the duty of photography to resolve any coloured picture into the three simple colours, yellow, blue, and red.

As far as we know, it has not yet been determined how many colour tones a normal eye can distinguish, but the observations made in preparing a table of colours by means of tricolour printing lead us to believe that their number is not very great, and scarcely reaches 500.

Let us see how far modern photography is able to fulfil these conditions, and let us define them by requiring three photographs, the first of which contains the yellow of the original, the second the red, and the third the blue, so that the parts of the negatives corresponding to these three (so-called) primary colours, according to the saturation, and to whether they are present in the mixed colours and broken colours as lesser or greater components, whether they produce perfectly clear or more or less transparent places.*

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[*] Abstracted from the *Photographische Correspondenz.*

[*] Vogel's law requires that the printing colour should reflect the coloured rays which are not absorbed, but reflected, by the respective colour-sensitive plate.—Ed. *Ph. Corr.*

Further, let us presuppose that the mixed and the broken colours reflect coloured light exactly like a mixture of two or three primary colours, even though actually they are not such mixtures, but only bear the character of such, as, for example, minium, chrome green, umber, &c. Were the photographer able, without more ado, to prepare three sorts of plates, the one sensitive for yellow, a second for red, and a third for blue, the problem would be solved. But with the present means known this is impossible. A complicated process must be gone through, and the negatives, still imperfect, produced by it require retouching by a practised chromo-lithographer.

Making the negatives for yellow causes the greatest difficulty. It is true that the progress made by photography in the last few years enables us to make silver bromide sensitive for the less refractive rays of the spectrum, but yet they can unfold their full effect only when the more refractive rays (formerly called the chemically effective rays of the spectrum) are weakened or totally kept back by partial or total absorption in screens, because *the photographic energy of the more refractive rays is far superior to that of the others. No one has yet disputed this fact.* If a plate sensitised for red with cyanine is exposed without a screen, it will not show any effect in red. It is sufficiently apparent from the above that we cannot make a silver bromide plate for yellow equally sensitive for red and blue. A roundabout way is necessary for the attainment of our purpose. The ordinary silver bromide plate is sensitive only for blue, and non-sensitive for all other rays. In regard to earthy green pigments, it is sensitive only according to the measure of the reflection of blue light, which is a help to us, as we wish to obtain green by printing yellow and blue one over the other. Their non-sensibility to yellow rays is very welcome to us, but their non-sensibility to red is extremely inconvenient. Taking it all in all, the only thing that disturbs us in taking an ordinary photograph is that both red and yellow are contained in it at one and the same time.

In regard to the exposures for red and blue, we must strictly adhere to the principle that the screens used must absorb not only the respective primary colour, but also these two mixed colours, for the appearance of which in printing the respective foundation colour is necessary as a component. Consequently, the screen for taking red must absorb orange, red, and violet, on the other hand allowing yellow, green and blue to pass, and, therefore, it will itself be green. For the last-named group we sensitise the silver bromide plate with silver eosine.

The photograph for blue must be taken with a screen which absorbs green, blue, and violet, but that transmits yellow, orange, and red, and, consequently, is itself orange-coloured. For the rays transmitted by the screen we use cyanine to sensitise the silver bromide plates. All negatives must be reversed.

Lichtdruck is unquestionably the best printing process for tricolour printing, because it reproduces all the gradations from black to white with perfect fidelity, and, at the same time, supplies all the conditions necessary for the three prints to register precisely. For artistic prints it is indispensable, but too dear for wholesale production. Only the type press answers all requirements in respect to numbers, rapidity, and cheapness; but its productions in colour-printing necessitating process blocks are far inferior to those of lichtdruck.

When two systems of narrow parallel cross lines are printed, one on the other, very often troublesome straight or crooked lined, light and dark stripes occur, which are called moiré or watering. For generations copper-plate engravers have known how to avoid this phenomenon or to obtain it if desired. Moiré arises with two grains (or positions of the grain) when they cross at too acute an angle, and with three when the planes (squares or rhombs) formed by the first and second are divided unsymmetrically by the third.

Of course only fast colours must be used in printing, as the fading of only one would totally alter the colour-effect of the print. We find, at a pinch, that the cadmium yellow, madder lake (Nr. 0000), and blue lake (Nr. 2), supplied by Seigle & Co., of Stuttgart, and Paris blue, are useful fast colours. This, on the one hand, sufficiently explains why every experimenter, knowing what he is about, will take these colours or some as permanent; and, on the other hand, that as we must take all their optical qualities into the bargain, we are compelled to tone down the negatives to them. Experience has further shown that it is possible to obtain the right colour effect only when adhering to the order—yellow, red, and lastly blue. When, for example, one prints first yellow, then blue, and lastly red, the result will be never violet, but dirty green.

In this Government Department we have successfully worked with these colours since October, 1892.

Tricolour printing produces better results in a shorter time than can be produced by chromo-lithography, because in reproductions of all sizes it faithfully reproduces the artist's individual manner. Tricolour printing lends one special charm to reproductions from oil paintings, inasmuch as it faithfully reproduces, not only colour as such, but also its peculiar character. This is natural, inasmuch as the process being a photographic one, it reproduces colour and form at the same time, and it is this which gives it a prospect, when more perfected, of practical application in the most different cases. Such attempts are now being made here, but have not progressed far enough to be reported on.

II.—Special Application.

Unquestionably, the preparation of the three negatives of exactly the same size for tricolour printing is a work requiring great photographic precision and special arrangements.

In order to make a slight error in focussing as little hurtful as possible, it is best in all reproductions, whatever their size, to focus for a line which is admissibly larger than the smaller dimension of the original. The maximum length of this line depends (1) on the relative size of the reproduction and the original, (2) on the size of the diameter of the sharp round image given by the objective used, and (3) on the size of the ground glass.

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* By mixed colours here and elsewhere is meant a mixture of two primary colours (yellow, red, and blue), and by broken colours a mixture of all three.

(*To be continued.*)

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

15,878. Henry Cook and Henry Rec Cook, 34, Southampton Buildings, Chancery Lane, London, "Improvements in or in connection with Photographic Roll Holders or Roll Holder Cameras."—*August 22nd*, 1893.

15,965. William Beck, Jun., 3, College Road, Harrow, Middlesex, "Improvements in or relating to Means for the Separation and Manipulation of Flexible Sheets more particularly applicable to the changing of Sensitised Negative Supports in Photographic Cameras."—*August 23rd*, 1893.

16,016. Lodewyk Jan Rutyer Halst, 4, South Street, Finsbury, London, "Improvements in Photographic Cameras.'—*August 24th*, 1893.

16,095. Charles Edward Hancock, 22, Southampton Buildings, Chancery Lane, London, "Improvements in View Finders for Photographic Cameras."—*August 25th*, 1893.

16,126. Ladislas Neivsky, 77, Chancery Lane, London, "Receptacle for re-filling Camera Magazines with Photographic Plaques without the use of a dark room."—*August 26th*, 1893.

Specification Published.

17,766. *October 5th*, 1892.—"Developing Solution."—R. G. Williams, Greenfield House, Heywood, Manchester.

In carrying out the invention, the sodium, potassium, or ammonium compounds of rosalic acid are mixed with the developing solution in about the proportion of twenty-five parts of a one per cent. solution of the compound of rosalic acid to 250 parts of the developing solution. By the use of developers which have had the above compounds added to them the development may be carried out in an ordinary room by gas light. While the plate is being removed from the dark slide to the developing tray, the gas should be lowered, but as soon as the plate is submerged it can be raised again, and the progress of the operation observed without injury to the negative from "fogging."

Phenol-phthaleine, or any other suitable yellow to red colouring matter which is soluble in alkalies may be used instead of rosalic acid.

Printed copies of the full specification of above patent may be obtained by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan, & Co.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.
August 31st.—Mr. W. D. Welford in the Chair.

Mr E. H. Bayston, Mr. T. E. Freshwater, and Mr. A. Haddon showed results of the last Society outing at the Zoological Gardens.

In reply to a question from the box, "What is a pinhole lens?" Mr. T. Bolas said that the term was used by the late Col. Stuart Wortley to describe a lens furnished with a very small diaphragm.

Mr. P. Everitt showed a portrait negative taken outdoors with a Ross portable symmetrical, the lenses of which had been mounted with the fixed aperture much enlarged, and still the definition was sufficient. By screwing the lenses back into the original mount the instrument was made to serve for all purposes.

Mr. A. Mackie said that Mr. G. F. Williams had some years since made a number of very fine instantaneous views with a similar lens.

The meeting was then resolved into a special general to rescind a newly-made rule, requiring that the nomination paper should be accompanied by the payment of the subscription. Mr. Everitt, on behalf of himself and of some members of the Committee, supported that rule, the rescinding of which was moved by Mr. T. Bedding and seconded by Mr. W. E. Debenham Messrs. R. Beckett, A. Haddon, A. Mackie, and Rapson argued in favour of the rule being rescinded, which was eventually done.

Hackney Photographic Society.

Weekly Meeting, held on Tuesday, August 29th. — Mr. E. Puttock in the Chair.

Mr. T. H. Smith showed some Nikko paper toned with the sepia bath.

Mr. Barnes showed a "Barnet" plate, and asked the cause of markings, apparently like fog.

Mr. Beckett thought the plate was not at fault.

The Hon. Secretary said he would get an opinion from the firm.

Mr. Hensler had used the P.O.P. Ilford formula more concentrated, and found it tone quickly and regularly.

Mr. Farmer had been advised to use ferrotype plates for squeegeeing.

Mr. A. Barker said old ones were apt to blister.

Hon. Secretary advised using an enamelled metal plate such as now sold.

A question was asked, "Is quick negative drying advantageous?"

Messrs. Hensler, Funston, and others deprecated it.

Dr. Roland Smith read a paper on "Daylight Enlarging." It was great advantage to enlarge; no enormous cameras should be necessary. He used a window facing N., N.E., or N.W., fitting a tight frame to exclude light, and having attached dull opal to reflect it. Camera slips on to groovings of frame, and two mop-handles are used, on which is placed a board to take enlarging paper. A rapid rectilinear lens was advised for portrait. Eastman's slow bromide paper, with ferrous oxalate developer, was recommended. He used the same stock for four years; but after using, placed out (in tubed bottle with film of paraffin) in sun.

The Hon. Secretary preferred amidol, and found ferrous oxalate blocked out detail too much.

Liverpool Amateur Photographic Association.

The ordinary monthly meeting of this Association was held in the Club Rooms, Eberle Street, on Thursday, August 31st, Mr. P. H. Phillips (the Hon. Treasurer) presiding.

There was a large attendance. After the election of three new members, Mr. F. Anyon, a member of the Council, exhibited twenty-one prints, representing fourteen different printing processes, and clearly explained the method of working each. Instructions were also given for producing the best results. A great deal of useful information was contained in the address, which was very interesting throughout.

CORRESPONDENCE.

PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.

Sir,—Will you kindly remind your readers that Wednesday, September 13th, is the only day for receiving exhibits at the gallery for the annual exhibition of the Society, and that they may be sent at any time up to September 11th to our agents?

Full particulars can be obtained on application to the Assistant Secretary at the Society's rooms, 50, Great Russell Street, W.C.

Chapman Jones, Hon. Sec.

HACKNEY PHOTOGRAPHIC SOCIETY'S EXHIBITION.

Sir,—Our annual exhibition will be held on October 17th, 18th, and 19th, at Morley Hall, as before. Open first day at seven in the evening, and twelve mid-day on the two successive days. Open classes—General work, portraiture, lantern slides, pictures which have been awarded a prize before. A medal will be given for best trade exhibit—most interesting. Orchestral music, as well as organ recitals, constantly. Forms will be ready in a week or so.

W. Fenton Jones, Hon. Sec.

◆

Methylated Spirit.—There are three varieties recognised. The oldest form was spirit containing 10 per cent. of wood naphtha, but this is now only allowed "for manufacturing purposes." The second variety, which is permitted to be sold to the public, if the dealer is licensed as a methylated spirit retailer, contains 0·375 per cent. of petroleum oil in addition to the wood naphtha. "Finish," which contains 3 ozs. of gum resin, usually shellac, in the gallon, can be sold without a licence. A separate establishment is compulsory for methylation, and here, in the presence of Excise officers, the spirit is checked, and then pumped into the enormous mixing vat, often of 10,000 gallons capacity, and the naphtha, &c., added. The wood naphtha comes chiefly from Germany in carboys or drums and samples have first to be submitted and approved in the laboratory at Somerset House. The examination there is confined to the specific gravity, boiling-point, neutrality, &c., of the sample, with the general object of preventing a too-refined product being employed.—*British and Colonial Druggist.*

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

A. K.—The spots on the French polish are due to hurried preparation; you should return the apparatus to the maker for repolishing.

J.—We have no record of the occurrence, and should be inclined to regard the report as a *canard*.

Mica.—We cannot give any opinion upon the matter at present. Curiously enough, we are experimenting in the same direction ourselves.

B.—There is nothing better than wash-leather as a filter for small quantities of gelatine emulsion. Wash it in borax and water before, and afterwards give it many rinses in plain water before you use it.

Ceres.—You will derive very little, if any, benefit by using isochromatic plates for such a subject, unless you employ a yellow screen at the same time.

Twenty.—For line subjects, use either photo-mechanical plates or lantern plates for your negatives. You can obtain either of most dealers, quarter-plate size.

A. C.—We shall presently publish an illustrated article upon the subject of which your letter treats, and we think that it will sufficiently answer all your needs.

Stifled.—As your dark room is little better than a cupboard, it necessarily requires more perfect ventilation than if it were larger. It is no use providing an exit for the vitiated air unless there is a free entry for fresh air. We should advise you to bore a line of inch holes along the bottom of the door, and to prevent access of light by covering them outside with a sloping board.

C. (Oxford).—The yellow marks in the bromide prints are due to imperfect fixing, and the disappearance of part of the image to contact with air while in the fixing bath. The cure of both faults is obvious.

◆

A Remarkable Source of Error.—Dr. E. Von Rebeur-Paschwitz, in No. 3177 of the *Astronomische Nachrichten*, publishes some interesting curves traced by a horizontal pendulum during the prevalence of certain slight earth tremors occurring on different occasions and at different places. Traced photographically on sensitive plates moving with a velocity of twenty-four inches per minute these tremors show a striking similarity to those observed by Prof. Milne in Japan. It appears that the surface of the earth is occasionally subjected to wave motions analogous to those disturbing a sheet of water, and often persisting with great regularity for several hours. Their connection with steep barometric gradients is probable, although that does not appear to be the only condition. In any case, the tremors appear in the presence of strong winds, at least in the neighbouring country, and they travel with at least the velocity of 2 km. per second. The influence of these tremors upon observations of polar distances, and upon spectro-photographic work, is sufficiently obvious to render it desirable that all observatories should be fitted with automatic instruments for registering these disturbances, and arrangements should be made for their study and comparison.—*Nature.*

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1828. SEPTEMBER 15, 1893.

PATENT OFFICE LIBRARY

NOTES.

A COMMISSIONER appointed by the *Lancet* has, in view of the cholera scare, been photographing localities of an insanitary character, with a view to tracing the relation between dirt and disease. The use of such pictures is difficult to discover, for we already know well enough that filth feeds epidemics, and no photographs, unless they be taken in conjunction with the microscope, are likely to help us to future knowledge.

THE courts and alleys in some of the metropolitan suburbs are a disgrace to civilisation, and if the photographs above referred to only call attention to the existence of such plague spots they will do good service. By the way, what a remarkable thing it is that some of the foulest slums are named so inappropriately. Turning out of York Road, Islington, is a fearfully squalid street which reeks in nastiness. It is called "Pleasant Grove." "Paradise Row" is another favourite name for tumble-down alleys, where angels' visits are few and far between. Irony could not be more effective if it had been intentional.

IT has hitherto been the fashion to honour photographers by bestowing upon them medals of bronze, silver, and even gold. But a new method has been discovered by the ingenious Japs, who, according to rumour, are about to raise a bronze statue to Professor Burton. We trust that the report is true, for Professor Burton has done much for photography, and it is fitting and pleasant that those among whom he has found a home should show their appreciation of his merits.

IT is quite a new departure, however, to raise a statue to a man during his lifetime, and if the fashion should become common it might lead to awkward results. It is certain, for instance, that if some of the London black bogies which disgrace our old-fashioned squares had been seen by those whom they are intended to honour, the originals would have taken speedy steps to smash them. On the other hand, there are many men who would be glad of a statue at any price. For these brass would be the most suitable metal to employ.

ONE of the biggest, if not the biggest camera ever made is now in progress of construction at Messrs. Meagher's, Southampton Row, London, and is destined for use in one of the Government departments. It is a very beautiful piece of work, and is of the old form of two boxes moving one within the other. Its sides are panelled, and the dark slides are fitted with roller-blind shutters. In spite of its bulk, the focussing screw works as easily as that of a whole-plate camera.

WE are now able to announce that the premises acquired by the Central Photographic Club are at Coleman's (late Ashley's) Hotel, Henrietta Street, Covent Garden. Here the members will find the usual accommodation afforded by a good club, together with dark rooms and other appliances in connection with photography. The formal opening meeting of members, and of those desirous of joining the Club, took place on Wednesday last. All communications with reference to membership should be addressed to one of the Hon. Secs.—Messrs. W. Fenton-Jones, 12, King Edward Road, Hackney, and C. H. Oakden, 53, Melbourne Grove, East Dulwich.

ALTHOUGH photography in the colours of nature is yet a dream of the future, processes by which photographs can be mechanically printed in colours are fast coming to the fore. The process patented by Mr. F. Kurtz, a well-known American engraver, utilises the so-called three primary colours in the preparation of the negatives, and from these he produces blocks with a line screen, one block for each colour, with the lines of each running in different directions.

The amateur photographic society of the future will not be considered complete without a dark room and appliances of its own. We are proceeding rapidly in this direction. Many of the provincial societies and clubs are already provided with these accessories, and tourist-photographers find the dark rooms, placed at their disposal for a small fee, of very great use. Thus we find the Manchester Amateur Photographic Society, in its monthly journal, informing those members about to visit North Wales that the Llandudno Camera Club allows its dark room to be hired at the rate of half-a-crown a week or a shilling per hour, while a charge of threepence is made for changing plates. The announcement, "Clean hypo mixed every morning," is not unimportant.

Most provincial professional photographers nowadays let out their dark rooms, and one or two hotels offer similar facilities, but neither the one nor the other encourages the spirit of fraternity as a society or club should. The opportunity of making the acquaintance of other amateurs and of comparing notes is one that not only does service to photography, but may lead to personal friendships of a very pleasurable kind.

The human hands, from the earliest days of the camera, have ever been a trial to the photographer. If the new craze started by Miss Kate Field, the lady journalist, "catches on," there is further tribulation in store. Miss Field is strenuously advocating in an American magazine the pose of "graceful opposition." There must be no more hands crossed on the lap, holding a book or trundling a chair. They must now be pointed in different directions, and, to show what she means, Miss Field has had herself photographed with the right hand resting, palm upwards, on the hip, and the fingers curved upwards towards the shoulder, while the left lies on a table clasping a roll of music. It is clear there is ample scope for invention if once it be allowed that hands may take the wayward positions advocated by Miss Field. An artistic picture may not result, but we are pretty certain to get eccentricity, and eccentricity in these restless days counts for much.

Before the autumn military manœuvres commenced it was announced that a new feature would be photographing the troops from balloons and transmitting negatives during the battle to the general commanding. We have seen no mention of this photographic programme in the reports of the various special correspondents. Was it carried out or abandoned? It has been suggested that Thomas Atkins during the recent heat wave would neither look nor feel precisely in his best form for "'aving 'is likeness took," but it is not likely considerations of this sort would have much weight with the authorities.

M. Marey is proceeding to fresh triumphs in the way of chrono-photography. He has recently turned his attention to recording the movements of reptiles and insects, and a series of instantaneous photographs illustrating the undulations of a snake rampant, an eel swimming, a lizard, and the walking of a spider, a scorpion, and the domestic blackbeetle, are figured in *La Nature* for last week. It is impossible to say what services these studies may render to natural history. That they will be of enormous value to the Darwins of the future it is quite certain. Meanwhile we may note that M. Marey has made one important contribution to what little is known of the reptile world by the fact which his instantaneous photographs have revealed, that, so far as the lizard is concerned, the undulations of the body coincide exactly with the movements of the feet.

At the Industrial Exhibition now being held at Bristol there is one stand to which the attention of photographers may well be directed. This is the exhibit of Mr. Epstein, of 33, Broad Street, Bristol, who shows no fewer than 1,200 different patterns of picture mouldings. Mr. Epstein's business has so much increased of late years that he has had to largely increase his business premises, and he now employs a large staff of workmen for frame-making, mount-cutting, &c. He makes a *spécialité* of picture-restoring, and undertakes to make a faded oil painting or engraving equal to new. He publishes a very comprehensive catalogue, and to this we must refer our readers for further particulars of this important business.

Metal Surfaced Paper.—A well polished yellow brass or nickeled sheet of metal is wetted by means of a paint brush or sponge with a solution of higher alkaline sulphide or hydro-sulphide, for instance, a solution containing 5 parts by weight of potassium tri-sulphide or hydro-sulphide to 100 parts of water, and, in addition, 1 per cent. of spirit, which is added to remove any greasy particles which may be present. The plate is then immersed for a short time in a neutral solution of copper sulphate (1 to 5), and transferred to an acid copper bath in which copper is deposited on it. It is immersed in a zinc bath in which it receives a deposit of that metal, and is subsequently treated with a solution of hydrosulphate of ammonia, mercaptan, or similar compound or allyle-sulphide previous to pasting the paper thereon or causing the paper to adhere by paste, in which the said substances are mixed. The metallic surface of the paper so produced is rubbed over, when dry, with a mixture of gold or silver cyanate with carbonate of potash in order to produce a real gold or silver paper.—*C. Endruiveit, Berlin, Germany.*

PHOTOGRAPHY IN AUSTRIA.

TRICOLOUR PRINTING AT THE IMPERIAL RUSSIAN STATE PAPER PRINTING OFFICE.

BY ARTHUR NADHERNY.*

(Concluded from page 575.)

In order to be able to work with as long a focussing line as possible, its length in this case being 60 cm., at this office we always make all pictures the size of the original, even though it be carte-de-visite size, using a rapid rectilinear lens by Ross, of London, focal distance 34 in. This focussing line is drawn on a piece of white cardboard, of the size of the drawing-board on which the original to be photographed is fastened, with Indian ink as black and thin as possible, half of it (*i.e.*, 30 cm.) on each side of the vertical centre line. The originals are fastened on this cardboard in such a manner that their centre corresponds with the point of section of the two lines on the cardboard, and the long side vertical. Then above and below the original, at a distance from it determined by the size of the plate used, a strip of paper is fastened with the "pass line" likewise drawn with Indian ink, which line is necessary in the subsequent printing.

If the reproduction is of the same size as the original, one focusses sharply, and the focussing line must correspond to a line 60 cm. long, marked on the horizontal line of the ground glass. In order to be able to do this, it is necessary that the frame which carries the drawing-board with the original on it and the focussing line should be adjustable by means of a fine adjustment screw. It will readily be understood that in this manner of focussing a slight error will be all the more trifling the smaller the quotient : $\frac{\text{Shorter side of the original}}{60}$. It is necessary to pay particular attention to this part of the work, as on the one hand the different focal distance of the objectives for white, green, and orange-yellow light requires three focussings for exactly the same size, and because on the other success depends very considerably on the exact registering of the three prints. In order to be able to focus for the other most casual in proportions, reproducing both easily and certainly, I have in the following table had the lengths given in the second column marked on the horizontal line of the cardboard, and those in the third column on the ground glass half on each side.

For photographs which, as already stated, are taken with the prism or reversed, both silver bromide gelatine plates and collodion emulsion plates are suitable. On account of sensitising with cyanine, the former should not contain iodide of silver (Schumann), and should be richer in silver bromide than are ordinary portrait plates. But their sensibility does not need to be greater than 16° — 18° W. The best way of sensitising them with eosine or eosine silver and cyanine is bathing them in the one colouring solution.

Here we usually employ washed collodion emulsion according to the directions kindly supplied me two years ago by Baron Huebl, which produce excellent results. For the rays transmitted by the green screen the emulsion is sensitised by the addition of $\frac{1}{10}$ volumes of silver eosine (according to Huebl). For sensitising the rays transmitted by the orange screen an alcoholic cyanine solution (1 ÷ 400) is used. One takes 1 cm. of it to 50 cm. I have found that the emulsion coloured with cyanine will keep some days. A ½ per cent. solution of gelatine mixed with ½ cm. solution of chrome alum, poured on before the emulsion, has proved useful.

Proportion of the Reproduction. Original = 1.	Focussing	
	Of a length of centimetres.	For centimetres on the ground glass.
1.	2.	3.
1 ÷ 1	60	60
1 ÷ ½	60	30
1 ÷ ⅓	60	20
1 ÷ ¼	60	15
1 ÷ ⅕	60	12
1 ÷ ⅙	60	10
1 ÷ ⅐	56	8
1 ÷ ⅛	56	7
1 ÷ ⅑	54	6
1 ÷ ⅒	60	6
1 ÷ ⅔	60	40
1 ÷ ¾	60	45
1 ÷ ⅘	60	48
1 ÷ ⅚	60	50
1 ÷ 6/7	56	48
1 ÷ ⅞	56	49
1 ÷ 8/9	54	48
1 ÷ 9/10	60	54

The screen fluid used for taking for red consists of a solution of 120 grammes cupric chloride in 200 cm. water, and is put on 1 cm. thick. A solution of erythrosine (1 ÷ 500) serves when taking for blue. We employ only the pyro developer recommended by Dr. Albert.

These remarks sufficiently show that this office did not need any new "invention" to carry out tricolour printing, with which, as is known to all interested in the subject, Ducoz, de Hauron, Cros, and J. Albert have occupied themselves for years, but that it was only a case of the most rational application of facts and methods already known. To prevent anyone thinking it was a case of "re-discovery," at the very first we chose the historic name of "tricolour printing." Therefore, everyone is able to rightly estimate the value of the article against us published in No. 6 of the *Photographischen Mittheilungen* for this year. As to the printing colours, we have only to remark that, for good reasons, we shall keep to the fast ones, whether they correspond to Vogel's "law" or not.

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* Abstracted from the *Photographische Correspondenz.*

The object of this article is to excite interest in this subject among photographers. Should it do so, and should, as formerly after the discovery of the orthochromatic process, theorists and practical men eagerly devote themselves to the solution of the problem, it is to be hoped that soon all mankind will reap the benefit. From time to time we shall publish in the pages of this journal (the *Photographische Correspondenz*) the results of the experience gained at this office.

St. Petersburg, July, 1893.

PRESENT AND FUTURE POSSIBILITIES OF PHOTOGRAPHY.

BY LEON VIDAL.

(*Concluded from page* 564.)

THE favourite of the future is evidently the flexible film or the very small plate, so that after a sufficient perfection of the rolling apparatus an endless ribbon may be advantageously substituted for a certain number of single plates.

The rolling device lends itself better to a rapid succession of new sensitive surfaces, but its operation must be made more reliable and easier. This evidently is a field for the future.

The future will find enough work in the development of photography, and persons who believe that very little s left to extend its field are badly mistaken.

Well, what is it, they ask? There is the question of colours and saving some perfection in details; that is all, isn't it?

First, in regard to colours, it is by no means a small step forward to bring this branch of reproduction to that degree of perfection which we have attained in monochromes.

If such a great step *has* been taken, inducing us to believe in a possibility of reproducing colours, and proving that the means of direct reproduction of colours exist, it is not less true that all is done with a view of applying it to industrial uses either to obtain simply and easily direct prototypes from nature, or to multiply polychromes with the aid of these prototypes.

The very day this possibility is recognised and justified by facts, nobody will do anything but take polychromes.

But the perfect realisation of this hope will not come without extensive further researches. It will be necessary to conquer, step by step, with the aid of successive progress, and no one is able to foresee how many years it will take us to arrive at the perfection of this process. Occupied with this most attractive study, we may ask what other applications remain to solicit our earnest endeavours?

It is not surprising that so little has been done until now towards employing photography in industrial decoration of ceramic and tissue? And besides, we have everything necessary to pursue this line with success. To th future, therefore, is left an application as important a useful, and we hope that this work will be accomplishe in an excellent manner.

How long before the constables, policemen, and detectives will be provided with detective cameras, permittin them to add to their words as witnesses the proof of th crime and of the identity of the criminals?

Though we have now all that is necessary for thi application of photography, so simple and useful, yet i remains still to be realised.

How long before we think of introducing into ou schools and colleges the study of photography practica enough to enable each scholar of either sex to constantl use the pencil of photography, according to the lessons o the course pursued, for gathering all the souvenirs o their excursions and voyages?

If this could be done, the application of the photo-lens to certain functions would cease to present difficulties.

We have already sounded far, very far, into the depths of infinite celestial space by photographic investigations but they are less applied to terrestrial or submarine uses.

Geology would find it advantageous to verify the symptoms of life in the depths of the abyss, aided by a photographic apparatus, combined with a magnesium flashlight, which may be lighted at a distance by electricity. The same might be done below the surface of the water, in depths which no eye has yet beheld, and thus an investigation of submarine landscapes, so to speak, would prove of priceless value to science.

We have not yet encountered any impossibility, and the well-known facts suffice to give immediate results of the highest value.

How much remains to be done in regard to the methods and nature of registration?

We cannot form an idea thereof.

Why, for instance, is not the portrait obligatory on the passport? What better proof that this *is* Mr. X. who speaks to you than the presentation of his duly executed passport bearing his picture?

On the train, at the hotel, at the public places visited by travellers, at the windows of the telegraph and post-offices, and of the banks, &c., everyone appearing should leave, without his knowledge, the proof of his presence in the shape of an automatic, direct and permanent reproduction.

What an aid this would be for the researches of the department of police, for the proof of alibis, &c.!

We would find no end, would we venture an excursion, be it ever so summary, into the realm of future application of photography.

We would only have to turn to every art, to every science, and say that the drawing of the light is called upon to render them much more valuable services than they can be rendered by any other means.

Until now we are concerned with flat monochromes or polychromes, but it is possible that images in relief may have to rely on the aid of photography.

Already it is used in engraving, either in relief or in impression. We have made by photographic process as well mouldings in relief, still somewhat imperfect; yet it is certain that we will learn the art of producing better reliefs, and, on the other hand, that we will obtain true copies of round ornaments.

The various trials in this line, known as photo-sculpture, did not give very satisfactory results ; yet we have results at least, and to the future helongs the task of more and more perfecting works of this kind.

In short, the question is only how to transform the plane into a relief, and we shall certainly find a solution in a more practical way.

It remains to consider what influence the art of drawing and painting with light exerts on the arts proper.

It is evident that photography teaches to see nature better, to give a better account for the rules of perspective.

Notwithstanding, there are always fantastics. They will have difficulties in freeing themselves of the true representation of their objects as well in composition as in colour ; yet, at the same time, they try to use originality and impress the stamp of their personality on their pictures ; and, besides, even the colour shows a tendency to approach more and more to reality, if we behold true pictures, painted directly by the aid of photography.

Perhaps they wish to turn away from truth, prompted by a desire for contrast, and imagine to find colour effects absolutely anti-natural.

This applies to some of them, but the larger number, though led by confirmatory proof to represent truth, are tempted to observe an exactness of colours much as if this question were one of perspective.

Will the art gain thereby? It will in correctness, perhaps it will not in originality. For it is probable that every artist will always have many means of proving his worth by impressing on his canvas the stamp of his personality, which will distinguish it from all the rest.

Notwithstanding photography, Roybet would not cease to be Roybet, and Bonguereau or Meissonnier would not be less than what they are.

All we can say is, that as perfect an art of copying as the art of photography must naturally exert a favourahle influence on theory and practice of the beautiful arts.

We do not understand how it may be detrimental to ideal art, which at all times will be able to assert its rights.

If photography compels it to become more accurate, where is the disadvantage ?

Is it for fear of invasion of a certain monotony due to this very excess of accuracy ?

It would be the same to say that we might ever become weary of the beautiful works of nature because they are always correct in outline and in effect of light and colours.

In our humble opinion, the ideal, the beautiful art, the art of creation, will gain, not lose, thereby, because the artist, not embarrassed by difficulties of composition, will be more at liberty to dart forth into the realm of dreams and pure vision of his imagination. As basis he will have the infallible guide of true effects rendered by the photographic printing, and nothing will prevent him from embellishing this reality with all the children of his brain.

As a result of the foregoing, we may predict the most brilliant future for the art of drawing, painting, and sculpture with the aid of light.

It will ever be useful to all and for every purpose. Nothing seems to exist capable of taking its place, and we cannot foresee how it might ever become hurtful to the beautiful arts, whose most powerful ally it is already at the present time.—*Read at the World's Congress on Photography, August, 1893.*

* * *

NEW COLD BATH PLATINUM PRINTING PROCESS.

BY SURGEON-MAJOR J. L. VANGEYZEL, M.B., F.I.C., F.C.S.

IN offering to demonstrate the method of working the new platinum paper, I trust I have not raised false hopes, for anyone who has come here expecting to learn anything new is doomed to disappointment. I must leave it to more experienced members than myself to tell you the best methods of obtaining the best results with certainty. I can only tell you my experience in working this paper and you shall see the results—failures as well as successes. Should I weary anyone with matters of ancient history I would ask his forbearance ; on the other hand, should any one who has not yet tried printing in platinum be tempted by the great ease with which the process can now be accomplished, I shall not regret this bold attempt to mitigate the reproach of not "doing something" at our meetings.

In the hot bath process the exposed paper was developed by floating it upon a solution of potassium oxalate heated to a temperature of about 140° Fah. To those unaccustomed to it, the process of heating and of maintaining the temperature of the bath within proper limits, the troubles of unequal heating of the bath from the use of spirit lamp flames where coal gas stoves were out of the question, the curling up of the paper, the troubles of air bells, the inconvenience of dipping sensitive finger tips into what was undoubtedly a hot bath—these were all considered disadvantages, and the use of this paper was limited by them. I do not myself think that the hot bath *per se* has anything in it to deter a photographer with ordinary enthusiasm from using it, especially if he has seen some of the best work which can be produced by it. The greatest and, I consider, the only disadvantage of the old hot bath process was that the paper did not keep long enough in good condition. I am told that this paper was always found deteriorated by the time that it reached this country ; at the same time the Platinotype Company informed me, when I was at home last year, that paper which they specially packed and sent out to Burmah gave excellent results when used soon after its receipt.

In the cold bath process the exposed paper is developed by floating it on, or brushing it with, a cold solution of potassium oxalate.

To obtain the best results, *the paper must be kept chemically dry* up to the moment of developing. Even the moisture of a warm breath would be sufficient to affect the sensitive salt. *In order to ensure the paper against damp—*

(1) It should, on opening a tube, be all transferred into such a calcium tube as this; and in the lower compartment should be placed anhydrous calcium chloride; but as this substance is apt when quite dry to give off dust, it is better to use asbestos over which calcium chloride has been run and dried. This is procurable when ordering the paper. The asbestos, however, soon enough begins to absorb moisture and gets soft; and it requires periodical drying by heating it in a hot air oven or over a kerosene stove.

(2) In order to avoid damp (during printing) from the negative itself or from the pads in the printing frame, it is best to give the negative a little warming in the sun before placing the paper in position, and a piece of waterproof material (also procurable ready cut to size of negatives) must be placed between the back of the paper and the pads.

(3) After exposure the paper should be returned to the calcium tube, unless it is developed at once. The exposed paper if placed in the tube in a roll with its printed side convex outwards will retain this curvature which is very convenient for development by floating.

THE CORRECT EXPOSURE IN PRINTING

is soon learnt with a little practice, and is about one-third of that for ordinary silver printing. With the cold bath paper the tendency is for the beginner to underprint, and those accustomed to the hot bath process will at first fall into this error. The decomposition of the sensitive iron salt on the paper is attended with a change of colour which is quite visible on the yellow coating—the colour ranging from a very pale grey to an orange tint in those parts which have been under clear glass. The general rule to follow is to print until the whole of the picture is visible except the highest lights (specimen prints shown). The examination of the print during printing may be done in a feeble white light, such as from a kerosene lamp with the flame turned down pretty low; but I prefer daylight filtered through a large canary-yellow window, such as one works bromide paper in. Inspection of the print even in a shady verandah is, I find, quite sufficient to show degradation of the whites after development. I cannot help suspecting that undue exposure of the paper during inspection of the print will explain to a great extent the greying of the whites which is ascribed to deterioration of cold bath paper. Some of this paper, which was bought at the company's office in London last November, I found working with perfectly clear whites in Madras last month (in March).

DEVELOPMENT

is performed in the same light as the printing was examined in; and there are many substances which might be employed for reducing the platinum salt in the paper to the metallic state. A weak solution of an alkaline salt, such as sodium carbonate, may be used, especially if the print is over-exposed, or in the case of paper which tends to fog on account of its having been over-kept. Here is a print—rather over-printed and developed quite right by brushing some of the stock solution of sodium carbonate which I use for developing gelatine plates by pyrogallic acid. The best results are, however, obtained by using potassium oxalate solution, and the Platinotype Company recommends that 1 lb. of this salt should be dissolved in 54 ozs. of water, and that one part of this stock solution should be diluted with two parts of water and used as the developer. The print is floated on this cold diluted developer, printed side down by taking one edge of the paper up between the thumb and two fingers, laying the lower edge of the print on the developing solution in a dish, and sliding the paper on to the surface of the bath, in the manner which I show you. The process is greatly facilitated by the curvature, referred to before, which the paper takes when kept in the calcium tube after printing. In this way the printed surface is evenly and rapidly brought in contact with the developer and air bubbles are avoided, not that these matter very much, however, with this cold bath development if detected in good time. I then pick up the print, lay it face upwards on the palms of my hands and watch its development till the right effect is produced, when the print is dropped face downwards into the clearing bath. The print can of course be developed by laying the paper at the bottom of a dish and flooding it with the developer, like in the development of bromide paper; but I believe that the best results are obtained by not wetting the paper with the developer right through to the back—so I have been told by one who ought to know. The Platinotype Company recommends that a bath even more diluted should be used for paper which has been kept, and I find that a bath diluted in the proportion of one of potassium oxalate to six of water works such paper very satisfactorily.

The rapidity of the developing process can be restrained by the addition of glycerine, since the salts on the paper are nearly insoluble in this medium. If glycerine be brushed over an undeveloped print, it may be developed slowly by brushing the developer over it, and in this way time is gained for local strengthening when required. A convenient way is to dilute the developer with glycerine as recommended by the Platinotype Company.

Stock potassium oxalate solution 1 part Glycerine ... ... do.	1 part.
Water	1 or 2 parts.

The print is laid face upwards at the bottom of a dish, a little of this solution is then taken in a cup, a flat camel hair brush is dipped into it, and the brush is stroked across the face of the print, in the manner shown. The brush is re-wetted between each stroke and applied so that succeeding strokes should overlap. The paper stands a good deal of brushing, and with a sufficiently dilute bath, development proceeds slowly enough to permit local intensification by brushing with undiluted oxalate solution any part which requires strengthening.

CLEARING AND FIXING

are done by plunging the print face downwards immediately after development into dilute hydrochloric acid (1 to 60) or citric acid solution (1 to 20); after five minutes the prints are transferred to a second acid bath for ten minutes, and then into a third for fifteen minutes. This is done in order to remove the iron salts from the paper, and the last acid bath should not contain any iron; this may be judged by the absence of any yellow colour in the acid bath when looked down through a depth of about two inches in daylight, or by testing a few drops of it with potassium ferrocyanide, when if iron is present the Prussian blue reaction is obtained. In this case the prints should be treated to yet another bath; every trace of iron compound must be removed from the paper, otherwise its permanency is endangered. Ordinary commercial hydrochloric acid contains iron as an impurity and should be avoided. The prints are subsequently washed in three or four changes of water for about quarter of an hour, and are then ready for drying and mounting.

This printing-out process permits of putting skies into landscapes and combination printing of various sorts; as the image is quite visible before development, masking is easily effected. In printing skies, clouds should be printed rather lightly and short of details being visible; in other words, print skies lightly unless you want thunderstorm effects after development.

I show you a number of prints illustrating various grades of success and some of the most common causes of failure. The latter may be briefly summarised as follows:—

(1) Too grey prints—may be due to under-printing; weak or flat negative; short development.

(2) Too brown instead of velvety black—long kept or spoilt paper; very acid developer; inefficient printing.

(3) Whites are not pure and are faint grey or drab—undue exposure of paper to white light before, during, or after printing; insufficient clearing, or damp in the paper.

In order to test the paper, float a piece of it on the developer and clear in acid; if the whites are not clean then the paper is bad. The effect of damp is evident in the print by muddiness in tone and impairment of the whites. Damp paper is further liable to be over-exposed in printing as the image is less visible than on dry paper.

(4) Deepest shadows are eaten out and look like brown paper:—Over-printing of parts under clear glass. A warm developer and longer development will improve the tone.

(5) Grey spots, or black smudges—due to sprinkling of the sensitive salt, for instance, during the tearing of the paper; if these particles happen to be moved along the surface of the paper, smudges are the result.

The Platinotype Company manufacture a special hot bath paper for obtaining sepia tones with a special developer. I find that the uranium toning bath (used for toning bromide prints) will give tones with cold bath platinum print ranging from sepia to red; but the process is very slow. The print which I show you took over two hours to acquire the tone which you see upon it. I noticed that the first action of the uranium bath on the platinum print was to intensify it, and it would be possible to save an under-exposed print within certain limits by subsequent use of the uranium toner. The addition of a small quantity of mercuric chloride to the developer gives sepia tones with a not too deeply printed paper; and the example which I show you, though by no means good, seems to offer encouragement.

With a small amount of careful practice it is possible to obtain most gratifying results; and nothing can be simpler than the manipulation involved in this latest improvement of the Platinotype Company's.

As to artistic merit also, those who are entitled to judge will admire platinum prints when they will hardly tolerate an ordinary silver glazed production.—*Journal of the Photographic Society of India.*

PLATINUM.

THE mining of this valuable metal is chiefly in Russia, and the following information is given by Mr. Geo. F. Kunz, in the report of the mineral industries in the United States at the eleventh census. The two deposits in the Ural Mountains are the Goro-Blagodat or Isa region, in the basin of the River Isa, and the Nisjne Tagilsk or Demidoff district, on the Martin River. The former is under Government control, while the latter is worked by private enterprise. In the latter field there were three large washing plants and a fourth is being erected. Besides these, the peasants have many small workings, for which they pay two-thirds of the produce as a royalty. The deposits are placers composed of serpentine bowlders, mixed with chrome iron ore, the platinum-bearing sand forming a layer of 6 inches to 10 inches in thickness on the bed rock, at a depth of 30 to 40 feet. The sand is mined by driving levels from a shaft, and is only worked in the winter, when the washing plants have to stand idle as the water is all frozen. For washing the material, it is hauled in cartloads of about 1,500 pounds and emptied into a revolving screen. The small stuff is stirred up in water by two women and the heavier materials settle in riffles in the troughs. Both the tailings and the heavy sand are rewashed. In two shifts of 12 hours—each shift, however, including 4 hours' rest—about 640 tons of sand are washed, yielding 2·7 pounds of platinum in each machine. The average daily yield of the whole of this district is about 9 pounds, worth about £2 per ounce, and the yearly production is about 1,620 pounds.

No details of the cost of mining are available, but the cost of labour for washing in the three plants for the 180 days during which the work could be done is about £7,000. Wages are not extravagantly high, as a driver gets 1·3 roubles a day for himself, horse, and cart, and he has to haul 60 loads daily. For each machine, 40 drivers, besides 16 workmen at 70 kopecks each, and 4 women at 40 kopecks each, are employed.

* * *

An Adhesive Cement.—Equal proportions of gum tragacanth and tapioca are ground together and heated with water of about 70° Fah., after which there are added about 50 per cent. of gum hog and an equal amount of starch, and the whole mixture heated at from 70°—120° Fah. The cement thus produced is said to be superior to any hitherto known for the requirement of silk and cotton manufacturers, calico printers, book binders, hat and boot makers, &c.—*Scientific American.*

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, SEPTEMBER 15, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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PHOTOGRAPHY IN THE PULPIT.

FROM a mere toy the optical lantern has advanced to the position of a valuable educational agent, and we all know that this is primarily due to the circumstance that photography is wedded to the instrument. Time was, not so very long ago, when the lecturer was content to illustrate his remarks with huge canvas pictures or paper diagrams produced at great expense, and generally of a rough and unsatisfactory nature. The optical lantern has changed all that, and its influence is felt in every schoolroom and lecture-hall in the world.

Of late years there has been signs that the lantern picture will in the future be no longer relegated to secular purposes. In various places of worship it has been used as an attraction to those for whom the ordinary kind of sermon has no charm, and, although as yet such innovation has not made much headway in the Church recognised by the State, various clergymen have found a benefit to the more humble members of their flock in holding lantern services in their schoolrooms. Not long ago we attended such a service in North London. It was well attended, and was held on Sunday evening at the conclusion of the service in the adjoining church. The vicar, in this instance, gave a homely discourse and illustrated it as far as possible by photographs from well-known sacred pictures by the old masters—views of the Holy Land, &c.—accompanied by good music from an organ and small orchestra. We understand that similar services are held in other parishes.

As might be expected our American friends have been far more go-ahead in this new application of the optical lantern than have their cousins on this side of the Atlantic. The conservatism which keeps our clergy in the neighbourhood of one regular groove is absent in the great Republic, and a man is more at liberty to do as the spirit moves him, without any reference to what his churchwardens or members of his congregation will think of it, than in the old country; hence the lantern in church is, according to the Rev. A. Patten—who read a paper on the subject before the recent Photographic Congress at Chicago—making rapid progress. Indeed, this gentleman is reported to have said that he knew of one pastor who, by means of a single sermon, illustrated with photographic slides, had induced more than three hundred persons to amend their ways and to lead better lives. Statistics are notoriously deceptive, and they are dangerous things to meddle with unless they can be substantiated. In the present instance the scoffer will be apt to say that if three hundred are regenerated by one sermon, a simple calculation will show how many discourses will be necessary to reform the entire country, not to say the world. But, setting this aside, the lantern sermon in America seems to be carried out in a very thorough manner. In one church, we are told, the pastor has under his control an electric button, upon pressure of which the building is darkened and the lantern pictures shine forth. Such an exhibition would certainly rouse those who are in the habit of falling asleep during sermon time; and the three hundred sinners already alluded to may have been the sleepy members of the congregation who now, for the first time in their lives, have appreciated and profited by the eloquence of their preacher.

The great difficulty in the way of this new departure is, to our thinking, the obtaining of really good lantern pictures. They can, of course, be had if a good price be offered to encourage their production. Plain photographs will soon cease to attract those for whom lantern services are primarily intended, and, for such a purpose, the colouring should be somewhat in advance of the usual commercial specimens. The introduction of photography killed the art of the slide painter, and by slide painters we mean those who could command a high price for what was, in truth, a very delicate miniature painting. The art is now almost dead, for no one can name in the same breath the cheaply-coloured photograph with the exquisite work of the old transparency painters. Some of these may yet survive, and, if so, they would find in the new application of the lantern to sacred purposes congenial occupation.

What we mean to advocate is that, if this work be done at all, it should be done in the best possible manner. The step between the sublime and the ridiculous is such a very narrow one that the least want of delicacy in the treatment of a subject might involve a catastrophe which everyone would deplore. A laugh in a lecture hall is well enough; but such a thing in a building devoted to sacred uses is not to be thought of. The pictures should, therefore, be of the best possible kind, good and suitable music should be employed to accompany them, and the discourse should harmonise with both. Unfortunately, that artistic sense which combines an appreciation of eloquence, music, and beauty of form is very rarely found, and, without it, photographic sermons run a risk of becoming a stumbling-block to those who learn.

WAYSIDE WHISPERS.

A RECENT contribution to one of the magazines has for its subject, "The Beginning of Photography." What some of us would like to know is, what is to be the end of it? Will the spread of the camera craze result in the professional, like Bret Harte's Caucasian, being played out? Will another generation witness the spectacle of the amateur sitting, *à la* Macaulay's New Zealander, on the ruins, not of London Bridge, but of Professional Photography? Well, we shall see what we shall see, but those in high life are certainly setting an alarming example.

They are breaking out in all manner of unexpected places. The son of the Duc de Chartres, Prince Henri d'Orleans to wit, is about to place upon his shoulders the troubles and responsibilities of authorship. The attack is a mild one, to be sure. It is only a book of travels in Siam and Tonking, but it is to be lavishly illustrated with photographs taken by the Prince himself! There are other royal personages, however, who are similarly afflicted.

It is well known that the two unmarried daughters of the Prince of Wales are energetic photographers, and one of the ubiquitous scribes who follow in the steps of royalty gives a graphic description of the enthusiasm displayed by the Princesses in this direction during their present Norwegian tour. Among the "pictures" said to have been made were several of the Hardanger Fjord, one of the finest in Norway. The fair photographers (good judges, too!) considered the Folge Fonde, a huge mass of rock and ice and snow, extending for thirty miles, 500 feet above the level of the sea, delightful. Norway is, indeed, a splendid field for the photographer; waterfalls, rugged rock scenery, glaciers, sunny meadow lands, and cultivated height affording a rich variety of picturesque "bits."

But if this sort of thing goes on much further, it will soon be necessary for the editor of this journal to set aside a column each week for a "Photographic Court Circular"!

What our patient but sorely tried English photographers, who think profane thoughts and mutter naughty swear-words to their moustaches at the stupidity, unreasonableness, and irritability of ignorant clients, really want, is a little of the independence of the leading French portrait-painter, Carolus Duran, which eccentric individual will have his own way. Sometimes in the middle of a sitting he will adjourn to his organ and begin to play. If the sitter, when he recovers from his amazement, ventures to object, he is coolly told to go and the canvas is smudged over. But then Duran is enormously rich, which is more than can be said of many portrait takers.

Photography is going ahead—that is certain. The art is rapidly gathering around itself many stories of the kind which were formerly supposed to be confined to the category known as "monkey," "doggy," or "fishy." We have had the tale of the camera fixed up for the purpose of securing the identification of bank thieves. We are all familiar with the good old chestnut which has for its apex the fostering of amateur photography among inmates of American prisons, and the poisoning of unpopular warders with the developing chemicals. The latest yarn, however, is that an Irish parson carried a kodak into the pulpit with him, a few Sundays ago, and took snap-shots at sundry members of his congregation who were fast in the arms of Morpheus. Next, please!

The latest interpretation of "spirit photography" (*sic*) is that given by Mr. Thomson Jay Hudson, the author of a work on the law of psychic phenomena. According to this controversialist, it is only necessary for the sitter to recall vividly the remembrance of the person to be photographed; the medium then recreates the image, which assumes such tangible shape as to be caught by the camera! Exactly, and what I am now waiting for is the news that photographing by proxy has become an accomplished fact.

They have some funny men on some of the art journals of the Wild West. Referring to a recent exhibition, one of these mirth-provoking scribes states that in the snap-shot section one of the competitors has kodaked a dog so naturally that the animal had the hydrophobia during the recent hot weather! We know that competitor. He's the same man who photographed a champagne bottle with such skill that the cork flew out just as he had finished toning the print. And, after he was married, he photographed his first baby in such a life-like manner that it cried, and his wife whipped it before she discovered her mistake!

"Captain Jinks."

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

INTERNATIONAL EXHIBITION AT HAMBURG—A NEW FIXING AGENT—DOUBLE ANASTIGMAT *versus* ZEISS ANASTIGMAT F/6·3—A NEW GOLD BATH.

INTERNATIONAL EXHIBITION AT HAMBURG.

THE Amateur Photographers' Association of Hamburg has published the programme of its exhibition of photographs, which will be opened on the 7th October next. A list of the medals and the gifts of honour which are at the disposal of the Association has been published, and it is stated that up to now more than forty awards are in the hands of the Society. The exhibition promises to be a great success.

A NEW FIXING AGENT.

A discovery has been made by Herr R. Ed. Liesegang, which will undoubtedly be of the highest interest to all who are connected with photography. There are few who are perfectly satisfied with hyposulphite of soda as a fixing agent, and who do not desire that some other substance, possessing all its good qualities and none of its objectionable ones, could be found to take its place. The inconveniences arising from the use of hypo, its liability to sulphuration in the presence of the least trace of acid, also the difficulty with which it is removed from the films by washing, are known by all and experienced daily. Amongst the various substitutes recommended from time to time there is none preferable to hypo. Cyanide of potassium, though giving very good results, is extremely poisonous; ammonia, apart from its being objectionable on account of its fumes, has been found to be destructive of paper and of the albumen in the case of albumen prints; sulphocyanide of potassium, which was also found to be a fixing agent, has never been used to any extent, on account of the sulphocyanide of silver formed being reprecipitated in washing with water; finally, hyposulphite of ammonia, which has been again recommended of late, seems to have no advantages at all over the sodium salt. The new fixing agent, discovered by Herr Liesegang, is known as "thiosinamin," $(CS\ NH_2\ NH\ C_3\ H_5)$. It is formed by mixing ammonia with volatile oil of mustard. It occurs in colourless crystals, which are readily soluble in water and alcohol. An aqueous solution of this substance dissolves chloride of silver as quickly as does hyposulphite of soda, whilst bromide of silver is dissolved a little slower, but also completely. A 1 per cent. solution is sufficient to fix gelatino-chloride prints within four minutes. Experiments have shown that the thiosinamin may be safely mixed with an equal quantity of concentrated hydrochloric acid without a decomposition of the salt taking place, and without its fixing qualities being diminished. It may equally well be mixed with alum or sodium chloride. With regard to the influence of thiosinamin which remains in the film by reason of insufficient washing, on the durability of the image, Herr Liesegang states that he has kept a few prints, which were only slightly rinsed after fixing, for about three weeks, without the least alteration being perceptible in them. It will be seen from the above statements that thiosinamin seems to be superior to hyposulphite of soda in several respects, the only inconvenience being the comparatively high price at which the substance is sold at present (about 45s. per lb.), but it is to be supposed that it could be manufactured at a reasonable price should a demand arise. From a chemical point of view it is interesting to note that the silver salt may be dissolved by a purely organic compound, all the other solvents of silver known hitherto being of an inorganic nature.

DOUBLE ANASTIGMAT *versus* ANASTIGMAT.

It will be remembered that soon after the introduction of the "double anastigmat" by M. Goerz, a controversy arose between the firm of Carl Zeiss and the former, on account of the collotypes, showing the results of a comparison between four of the best modern lenses, which were decidedly in favour of the double anastigmat. The correctness of these results was disputed, and it was stated that the most perfect of all existing lenses, the Zeiss anastigmat, *f*/6·3, had not been subjected to the comparison. For this reason another comparison has been made quite recently by the following three authorities: Dr. Miethe, Dr. Neuhauss, and Dr. Stolze; and this time the double anastigmat has been tested side by side with the Zeiss anastigmat, *f*/6·3, the comparison being carried out with the utmost care and with absolute impartiality. As the results of this measurement, the following numbers were found, indicating the angle sharply subtended by the two lenses if stopped down to *f*/7·7, *f*/11, and *f*/22 respectively.

	Goerz Double Anastigmat.	Zeiss Anastigmat, *f*/6·3.
f/7·7	39°	25·5°
f/11	48°	38°
f/22	65° and more	65°

This table shows that the double anastigmat gives a larger extent of definition with a larger aperture than the Zeiss anastigmat, *f*/6·3.

A NEW GOLD BATH FOR ARISTOTYPES.

During the hot weather it will be found an advantage if the film of the gelatino-chloride prints can be hardened during the toning process. For this purpose, it has been suggested to add alum to the toning bath; but the retarding action of this substance is an inconvenience. Herr R. Ed. Liesegang has found that aluminium sulphocyanide, which combines the hardening action of the alum with the accelerating qualities of the sulphocyanide salts, may be advantageously added to the gold bath. To prepare 100 cc. of the gold bath, 18 cc. of sulphocyanide of aluminium of 19° Baumé should be mixed with 75 cc. of water, and to this mixture 8 cc. of a 1 per cent. aqueous solution of chloride of gold should be added. The gelatino-chloride prints, after having been well washed, are placed in this bath for from five to ten minutes. They will acquire an agreeable bluish-black tone, the films becoming at the same time hardened. It will be remembered that, for the same purpose, the addition of aluminium chloride to the combined toning and fixing bath was recommended some time ago by Dr. Stolze.

THE WORLD'S CONGRESS AUXILIARY.

INTRODUCTORY REMARKS BY JAMES B. BRADWELL.

It is, perhaps, not out of place for me, representing the committee on the Congress of Photographers that called you together and selected the persons to present papers for your consideration and discussion, to say a few words (not of welcome, for this is your Congress, but relating to the Congress itself).

Fifty-five persons, representing Europe, Asia, Africa, America, and the Islands of the Sea, have accepted invitations to prepare papers and deliver addresses upon photography and the processes dependent thereon. Twenty addresses from persons whose residences are so distant that they are unable to attend the Congress have been received by the committee, and will be read and discussed. The other addresses will be delivered by the authors in person. This is an age of illustration, and it has come to stay. Not the illustration of the old wood-cut with which the spelling-books and readers of our youth were thought to be adorned, but of the beautiful silver print, the photogravure, the life-like half-tone, and other light printing processes.

The programme presents a great variety of talent and subjects. "Colour Photography" is represented by Fred. E. Ives, its ablest exponent in America; "Isochromatic Photography," by G. Cramer; and "Orthochromatic Photography and its Practical Application," by John Carbutt, once a Chicago photographer. These gentlemen are the proprietors of two of the most extensive dry plate establishments in the country, and will do their subjects ample justice. "Photography in Natural Colours," by the eminent artist, Edward Bierstadt, of New York. "The Present and Future Possibilities of Photography" has been assigned to the enthusiastic W. I. Lincoln Adams, of the *Photographic Times*, and to Leon Vidal, an eminent artist of Paris and professor at the National School of the Decorative Arts. "Winter Photography in the Alps" is aptly treated by Elizabeth Main. Dr. John Nichol, of the *Photographic Beacon*, well known both in America and in Europe as an able writer and skilful photographic artist, still holds his subject within his photographic breast, but we have no doubt it will be entitled "Words of Wisdom from the Watch Tower." "Amateur Photography" was very appropriately selected by Miss Catharine Weed Barnes (now Ward), and "Photographers' Efforts at Union" was appropriately selected by H. Snowden Ward, of London, England; and in the light of Mr. Ward's efforts at union we have no doubt his paper will be exceedingly interesting. "Electric Lighting in the Studio" has a skilful exponent in Henry van der Weyde, of London, England. "Portraiture" is treated by Shapoor N. Bhedwar, of Bombay, India, in an exceedingly able and interesting manner. "Posing and Illumination," by E. M. Estabrook, of Elizabeth, N. J., will well repay a careful examination "The American Bibliography of Photography" is to be treated by C. W. Canfield, of New York, an able and experienced photographic writer. "Photography Applied to Scientific Research," by Prof. Romyn Hitchcock, of the Smithsonian Institute, will be a paper of lasting value. "The Finer Division of the Silver Haloids for Scientific Work," by Thomas W. Smillie, of the Smithsonian Institute, will be of unusual interest to the scientific photographer. "The Hand Camera—its Aims and Objects," by Walter D. Welford, of London, England, will be instructive to all not skilled in the use of this instrument. "Film in Relation to Amateur Photography," by Gustave D. Milburn, of Rochester, calls attention to a matter not generally known in relation to films when rolled. "The Camera as a Source of Income Outside the Studio" will be treated by Mrs. Elizabeth Flint Wade, of Buffalo. "America's Share in the Development of Photography" will lose nothing at the hands of Julius F. Sachse, editor of the *American Journal of Photography*. "Carbon Printing" has been assigned to W. A. Cooper, one of Chicago's oldest and most expert process workers. "Fine Line Screens and their Use," by M. Wolfe, of Dayton, who was not the first to discover their use, but was, we believe, the first in America to make them publicly an article of merchandise. "Photo-Mechanical Processes in England" receives the attention of W. T. Wilkinson, the author of a work on photo-engraving. The beautiful process of photogravure has been selected by the artistic and well-known Ernest Edwards, of New York, and photo-mechanical printing up to 1893 by Professor Jacob Husnik, of Prague, Austria, author of four works on mechanical printing.

The learned professor expects to surprise Americans. We have no doubt he would be surprised if he could be present and hear the discussion that his paper will occasion. America is not behind the age in either photography or process work. "Support-Reflection — its Sources, its Effects, its Remedies," is to be treated by J. T. Sandell, of Thornton Heath, England, There have been so many improvements in photographic lenses recently that anything upon this subject by scientific and practical men is of interest to all photographers. "Tele-photography" will receive the attention of Edward Bausch, of Rochester. The address of Thomas R. Dallmeyer, of London, whose name is known wherever photographic lenses are used, arrived but yesterday, and its title on the programme should be changed to "Tele-photographic Systems of Moderate Amplification." "Recent Improvements in Photographic Lenses," by Professor W. K. Burton, of the Imperial University, of Tokyo, Japan, is upon a subject of much interest, and will rank high among the able papers of the Congress. "Photography as an Aid to Education" will be demonstrated by Professor Charles F. Himes, of Dickinson College. "The Camera and the Pulpit" will be the subject of a discourse by Rev. A. W. Patten, of Joliet. M. A. Seed, maker of the celebrated dry plates that bear his name, will speak of cross-grained negatives, and tell how to prevent them. Dr. Ellerslie Wallace, of Philadelphia, has a very readable paper on medical photography in general. "Photography in Surgery," I am pleased to say, will be treated by a woman, Mrs. Dr. G. F. Sears, of Chicago.

In this connection I may be permitted to say that, in all the departments of the Photographic Congress, men and women are upon an equality. Notwithstanding the continued efforts of Mrs. N. Gray Bartlett, chairman of the Women's Branch, and the entire committee, but five women have been found in Europe and America to accept invitations to deliver addresses.

"The Sensitiveness of Photographic Plates" is the subject selected by the cautious and accurate Professor G. W. Hough, of the North-Western University. Andrew Pringle, of London, is to tell of "The Services of Photography to Medicine." "Negatives for Lantern Slides and Enlargements" is the subject of F. A. Bridge, Hon. Secretary of the Photographic Club, London. "Marine Photography" is assigned to one of its ablest exponents, Henry G. Peabody, of Boston.

"Photography for Illustrating the Practice of Medicine and Surgery in a Great Hospital," by Prof. O. G. Mason, of Bellevue Hospital, will interest not only photographers, but all who are in the practice of medicine and surgery.

"Photography as Applied to Medicine," by Professor Albert Londe, of Paris, is a paper of great scientific value and interest. "Photography as Applied to Surgery," by Professor A. S. Murray, of Johns Hopkins Hospital, is a practical paper. The beautiful landscapes of Colorado, taken in the pure air of the mountains, will receive the attention of W. H. Jackson, of Denver.

The paper of W. Jerome Harrison, of London, contains valuable suggestions as to the desirability of establishing an international bureau to record and to exchange photographic negatives and prints. I would recommend that this paper be taken up out of its order, read, and referred to a committee, with instructions to consider whether some plan cannot be adopted to carry out the suggestions. "Photography without a Lens" is illustrated by Captain R. Colson, of Paris. "Universal Standards in Photographic Apparatus" is to be advocated by Henry Sturmey, of London. "The Latent Image" has been selected by Miss Adelaide Skeel, of Newburgh, as her theme. In brief, this is a portion of the literary bill of fare which has been prepared for your consideration.

In view of the great number of papers and the shortness of time, I would recommend that the reading of no paper be allowed to occupy more than twenty minutes, and that in discussing questions relating to the papers no person be allowed to occupy more than five minutes. Suggestions following the reading of a paper are often more valuable than the paper itself.

Can we estimate the value of portrait photography better than to ask: What would a photograph of Columbus be worth to-day, if it could be produced of him as he landed upon our shores four hundred years ago? Are his portraits satisfactory? We may admire the work of the great masters of the past and the portrait painters of the present, but no human hand can equal the sunlight of the Almighty for reproducing the life-like and accurate features of the human form. We depend upon photography to give us pictures of our friends as we see and know them now. Is there any art or science upon which so much depends as photography? The newspapers, the magazines and the books of the world are illustrated by its aid. The astronomer, the surgeon and physician, the architect, the engineer, the minister, the lawyer, and the judge in the administration of justice, all, more or less, are aided by photography.

The object of this Congress is to bring together the photo and the photo-mechanic artists of the different countries in the world to compare views and methods and profit by the experience of each other.

The scientific men of the world are at work to develop and perfect photo-mechanical art; and such rapid progress is being made that the man who is in the front rank to-day may find himself in the rear to-morrow. The slow wet photo process, once universal, has given place to the rapid dry plate except for process work and lantern slides. Some claim for half-tone work that a slow dry plate is even better and gives a truer reproduction. The asphalt, the swelled gelatine, and the wash-out gelatine processes, once so popular, have almost passed into disuse. The half-tone etchings on zinc, once in general use for fine book and magazine illustrations, have very generally been superseded by the fine half-tone enamel copper process. This is undoubtedly the best and cheapest process, all things considered, up to date for fine book illustrations, as the blocks work nicely with type, and when properly made may be used to make electrotypes.

Blocks made by this process with a coarse line screen and deeply etched may be run upon a country cylinder press, where common news print paper is used and poor ink.

With few exceptions the world over the great dailies use the old wet plate process and the etching in line upon zinc for purposes of illustration. I look forward to the near future, when the half-tone process will be generally used by our great city dailies.

Half-tone blocks may be made without etching by taking a slow dry plate, exposing it under a line screen, and after development subjecting it to heat and placing it in a chemical solution. An electrotype may be made from this negative, which will have all the relief required to run on the printing press. In fact, the dry plate half-tone negative itself thus treated may be cemented to a wooden block and run on the printing press with type within an hour from the time the exposure was made on the photograph to be copied.

I have no doubt there are those within the sound of my voice who will live to see the time when photographic reproductions will be sent from country to country as quickly as we do telegraphic messages to-day.

W. Jerome Harrison says: "The International Photographic Survey of the Heavens has now been in progress six years; some thousands of negatives of the stars have been obtained, and when this survey is completed, the present face of the sky will be known with an accuracy which the astronomers of a pre-photographic age never dreamed of."

In conclusion, may I not ask, Who shall say that the camera, adjusted by the hand that feels, and focussed by the sensitive eye that sees beyond, with the aid of intensely sensitive dry plates, shall not bring to light and view the forms of our departed friends, and solve the problem of immortality and life?

A SUGGESTED IMPROVEMENT IN THE CORRECTION OF LENSES FOR PHOTO-MICROGRAPHY, PHOTOGRAPHY, AND PHOTASTROGRAPHY.

BY HENRY G. PIFFARD, A.M., M.D.

PRIOR to the time of the late Col. J. J. Woodward, M.D., Surgeon of the United States Army, say twenty-five years ago, photo-micrography was in its infancy. It is true that photographs of microscopic objects had been made, but they were crude and unsatisfactory, and were all made with what we would call low-power objectives. Although the objectives then made were of excellent construction, and well adapted to the revelation of the structure of minute objects to the eye, yet the photographs made with them were greatly inferior in clearness and sharpness to the virtual image appreciated by the retina. The cause of this was not far to seek, and was due to the lack of coincidence of the visual with the so-called actinic focus. At the period mentioned, the art of photography was almost exclusively practised with the aid of collodio-iodide plates, which were very sensitive to the blue, violet, and ultra-violet (more refrangible), and but feebly sensitive to the green, yellow, and red (less refrangible) rays. *Per contra*, these latter rays impress the eye so forcibly that the effect of the more refrangible rays is almost obscured—that is, when mingled with the others, as in ordinary white light. The practical outcome of this condition was that, when the ground glass of the camera was in a position that gave the sharpest image to the eye, this image could not be duplicated as to sharpness in the developed photographic plate occupying the plane previously occupied by the ground glass.

In order to obtain a sharp photographic image it was necessary either to shorten the anterior conjugate focus, which involved the veriest guesswork and was practically unavailable, or else to move the plate to a point nearer the lens where the actinic rays came to their posterior conjugate focus. This was perfectly practical, and by repeated experiment the relation of the actinic to the visual focus in a given lens could be ascertained. Although practical, this method was hardly satisfactory.

In ordinary photography, the difficulty attending this difference in the natural positions of the actinic and visual foci had already been overcome by making the visual focus correspond with the actinic by constructing the lens so that it should be left in a state of moderate "under-correction," as it is termed by opticians.

Among the first to appreciate the value of this, as applied to photo-micrography, was Colonel Woodward, and the first opticians to give it practical form were, I believe, Mr. William Wales, of New York, and Mr. Ernst Gundlach, then of Berlin, but now for many years a practical optician in this country. This example was followed by Tolles, of Boston, Powell and Leland, of London, and others.

Woodward was one of the most accomplished microscopists, so far as the manipulation of the instrument was concerned, that ever lived. His skill in securing the virtual image and in projecting the real image was at that time equalled by few and probably surpassed by none.

With Woodward's skill and the possession of lenses specially adapted to his purpose, the results obtained by him were the wonder of the scientific world.

Since his time photo-micrography has, in the main, followed the paths he marked out, and the improvements in the art since then have simply kept pace with the gradual improvement of the objective, and especially in the direction of increased apertures. One notable advance in the technique, however, is Abbé's happy conception of the projection ocular.*

The collodio-iodide gave place some years ago to the gelatino-bromide plate, which, like its predecessor, is especially sensitive to the blue and more refrangible rays, and almost wholly insensitive to those which give the strongest visual impression.

In order to obtain the sharpest image on such a plate, the lens must of necessity be under-corrected, as already stated. In accomplishing this, however, there is a certain loss of visual excellence which, however, is of little moment in ordinary photography. That this under-correction of lenses for photo-micrography results in an impairment of their visual excellence is well known to opticians, but has thus far received but little notice from the actual users of the lenses in question. A few recent writers, however, have directed attention to the matter.

Londe (*La Photographie Médicale*, Paris, 1893) says: "The first and most important question is the choice of objectives. These may be excellent for observation and more than mediocre for photography."

Mercer (*Journ. Royal Micro. Soc.*, June, 1892), in speaking of some of the objectives used by him in photo-micrography, says: "The Wales objectives are corrected spherically for the violet ray. The violet image is, therefore, somewhat superior to the visual, with which, however, it is coincident."

Czapski, in a letter published in Van Heurck's treatise on the microscope, London, 1893, says: "In every case the objectives specially constructed by opticians for photography can never be advantageously employed for observations, and inversely."

From the foregoing it will be clear that lenses which were best for visual purposes were not the best for photographic use, and it was necessary, therefore, when the most perfect results were sought in both departments, to have a double set of objectives, and many investigators did provide themselves with such an outfit." †

The inconvenience and lack of economy involved in this arrangement are manifest, but how to obviate it does not appear to have occurred to opticians or others interested in the subject.

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* Peculiar advantages have been claimed in behalf of objectives constructed according to the so-called "apochromatic" system. These lenses, however, possess certain disadvantages which restrain me from giving them unqualified commendation.

† It must be admitted that some of the apochromatics of short focus (2 mm.) obviate, in a measure, this difficulty; but those of longer focus have not, at least in my hands, proved satisfactory.

Having been practically familiar with photography and photo-micrography for upwards of twenty years, I have had the opportunity in that period to become reasonably familiar with the inherent defects of their technique, but it was not until the latter part of 1891 that I perceived that a way out of the difficulty might be readily found.

During the past five or six years the manufacturers of gelatino-bromide plates have placed on the market, plates which are extremely sensitive to yellow light, and but feebly so to the blue, violet. and ultra-violet rays of the spectrum.

If, now, the objective be corrected for yellow instead of for blue or violet light, the negative being made on one of these yellow-sensitive or so-called "orthochromatic" plates, there should be an exact correspondence of the visual and chemical foci, and the resulting picture should be superior to one that could be obtained by the ordinary procedures—that is, an under-corrected lens and blue-sensitive plate ; and, at the same time, the objective would not have its visual excellence impaired, supposing, of course, that the optician performs his part of the work with care and skill.

In order to test the practical value of this theoretical reasoning, I requested Mr. H. R. Spencer, now of the Spencer & Smith Optical Company, of Buffalo, N.Y., to calculate the formula and construct a lens which would fulfil the stated requirements. The result was a lens of ⅙-inch equivalent focus, and possessing a numerical aperture of 1·35. With this objective I have resolved and photographed the *Amphipleura pellucida* in lines, and have photographed both the *Navicula rhomboides* and the *Van Heurckia crassinervis* in lines and beads.*

In ordinary histological work; with amplification ranging from 200 to 400 diameters, the results with this lens have been very much more satisfactory than I have been able to obtain by any other combination of lenses or plates. With a ¼-inch objective of the same construction, made by Spencer & Smith on the order of Dr. J. A. Fordyce, of this city, I have resolved the *A. pellucida* with white light, and have demonstrated the resolution to him and to others.

In order to further test the correctness of the principles involved, I requested Mr. Turner, of the Gundlach Optical Co., Rochester, N.Y., to make a ¾-inch lens of moderate aperture (N. A. 0·33). Considering the power, aperture and price (12 dols.), the lens gave very satisfactory results, and wholly confirmatory of the theoretical demand.

In using these lenses with yellow-sensitive plates, there is a distinct gain in definition and purity of image, both visual and photographic, if the object be illuminated with light of corresponding refrangibility (λ 5,892). This may be obtained absolutely by employing a sodium flame, or approximately by intercepting the white light with a medium capable of absorbing the rays of short wavelength.

For the greater part of photo-micrographic work, and especially that which deals with histology, I unhesitatingly recommend the technique here described, which, briefly stated, consists in the use of objectives whose corrections shall be adjusted to the D instead of the G or H lines, and in connection with plates specially sensitive to D light, and having the object illuminated as near as may be with rays of the same refrangibility.

If, however, we have to deal with objects in which we must resolve or optically separate particles whose approximation to each other is less than, say, $\frac{1}{100000}$ of an inch, the foregoing statements do not apply.

The studies of Helmholtz and of Abbé have placed us in possession of a formula which appears to be theoretically and practically true, and may be expressed as follows :—

$$\text{R.-p.} = \frac{\text{n. x sin. u.}}{\lambda}$$

"R.-p." here indicates the resolving power of the objective ; "n." the refractive index of the medium lying between the cover glass of the object and the front lens of the objective (be the same air, water, glycerin or oil) ; "u." the semi-angle of the aperture of the objective ; "sin." the natural sine of said semi-angle ; and "λ" the wave-length of the light employed. Now the "numerical aperture" of the lens is equal to n. x sin. u., and the equation becomes simplified into—

$$\text{R.-p.} = \frac{\text{N. A.}}{\lambda}$$

From this it will be seen that if we desire to obtain extreme resolution, it is necessary to employ objectives of the greatest numerical aperture, and employ in connection therewith such visible rays as possess the shortest wave-lengths. For the photographic reproductions of such images blue-violet sensitive plates, with under-corrected lenses and approximately blue or violet illumination (Woodward's technique) will give the best results. At the present time, Mr. E. M. Nelson, of London, is devoting special attention to the development of this branch of photo-micrography.

It will be noted that the formula above given does not take into account the equivalent focus or magnifying power of the lens ; in other words, that this factor has no influence on the resolving power of the objective. This is correct. A well-corrected 1-inch objective will resolve exactly as well as an equally good ¼-inch, provided the factors N., A. and λ remain the same. I here allude to this matter, as every few years someone imagines that he is on the verge of great discoveries, to be brought about by the simple feat of increasing the amplification of the image.

(*To be continued.*)

* * *

The judges appointed for the forthcoming Exhibition of the Hackney Photographic Society are Messrs. Cembrano, Debenham, and possibly Col. Gale. The last day for receiving forms will be the 30th inst.

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* As regards the last-named object, it has been previously photographed in beads, so far as I am aware, only by Van Heurck with the aid of a lens of higher power, ⅛-inch and much larger aperture (N. A. 1·60).

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

16,202. EUSTACE FRITH, 55, Chancery Lane, London, "Improvements in the Construction of Supports for Glazed Photographic Pictures and other Articles capable of being similarly supported."—*August 28th*, 1893.

16,319. THOMAS BAKER, 283, Sherlock Street, Birmingham, "Baker's Rapid Photograph Mounter or Roller Squeegee."—*August 30th*, 1893.

16,354. EUGEN ALBERT, 45, Southampton Buildings, Chancery Lane, London, "Improvements in the Production of Photographic Negatives."—*August 30th*, 1893.

16,373. FREDERICK WOODWARD BRANSON, 2, East Parade, Leeds, "Improvements in, or in Connection with, Cameras.'—*August 31st*, 1893.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

September 8th.—Mr. A. HADDON in the Chair.

MESSRS. A. MACKIE and G. W. Atkins (re-appointed) were elected members of the Committee, to fill vacancies caused by the resignation of Messrs. P. Everitt and G. W. Atkins.

Mr. R. BECKETT showed a plate which had originally been exposed on a copy, and, having been put away for some months, had been used for a portrait. The original subject now showed as reversed in light and shade. It was suggested that the original exposure might have been sufficient to ensure reversal of image, but it was pointed out that the dark parts of the portrait came out nearly transparent, which they would not do if the plate had received so long an exposure in the first instance. No satisfactory explanation was found. Mr. Beckett also showed plates with fog marks in patches, supposed to be due to the dark slide.

Mr. A. COWAN said the light would in time penetrate the wood of the slide and fog the plate.

Mr. W. E. DEBENHAM thought the marks resembled those due to the dark-room door or window being opened, whilst the plates were wrapped in brown paper merely, without the lid of the box being closed. On examination it was found that the fog marks were much stronger on one plate than on the other, and that they were similar, but reversed in position, which circumstances were considered to favour the idea that the fogging had occurred whilst the plates were lying face to face.

HACKNEY PHOTOGRAPHIC SOCIETY.

Weekly Meeting, held on Tuesday, September 5th.—Mr. ROBT. BECKETT presiding.

The HON. SECRETARY presented the Society with Cassell's Academy books. Some of Mr. Powell's plate-backing was distributed, Messrs. Beckett and Smith promising to give in report on same. The negative shown last meeting by Mr. Barnes was explained to have been caused by light, the plate being not to blame.

A question was asked by Mr. ROBERTS how to remedy a film which had been put wrong way in developer.

The CHAIRMAN said if this had been discovered soon, by turning right way and giving prolonged development, it might have been cured.

In answer to question as to how many gelatino-chloride prints could be toned at once, the HON. SECRETARY advised just enough to cover dish, about two in half-plate dish. Mr. T. H. SMITH thought six or eight in 1-1 plate dish.

A question on weights and measures was then debated on. The CHAIRMAN said doubt was in many minds at present, so they preferred to say "parts," as avoirdupois and apothecaries' weights seemed to be a rock on which opinions were divided.

Mr. PUTTOCK asked what is best amount of developer to use for half-plate?

The HON. SECRETARY said he would use at least 3 oz. It was a great mistake to be economical.

Mr. GOSLING showed some stereoscopic work done with his home-made contrivance.

Mr. BARNES showed some Isle of Wight views. Mr. PUTTOCK showed a much over-exposed plate. Mr. S. BECKETT advised intensifying. Mr. AVENT showed a print executed by the Automatic Printing Machine Co. on bromide rapid paper. Prints were automatically exposed and cut off at the rate of sixty per minute. The print shown of Captain Abney was very fair.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

September 4th.—Ordinary Meeting at Hanover Hall, Hanover Park, Peckham.—Mr. MARK BOXALL in the Chair.

By the courtesy of Mr. POWELL, samples of his caramel and sienna anti-halation backing were distributed among the members for trial.

Mr. L. E. MORGAN then gave a demonstration of the working of the new developers, amidol, metol, and glycin. The latter, he said, did not, by reason of the slowness of its action, lend itself to demonstration. It was strongly recommended for reproductions, photo-micrography, &c. Negatives of varying exposures were passed round to show its capabilities in that respect. Amidol, he stated, he was partial to on account of its simplicity. He used a single solution, the formula of which was given by the manufacturers, and proceeded to develop some negatives, bromide paper, and lantern slides with it. Some plates were also developed with metol.

At the next meeting, on the 18th inst., Mr. H. E. FARMER will give a demonstration of the making of lantern slides.

BRIXTON AND CLAPHAM CAMERA CLUB.

THE last meeting of the above Club was held on Tuesday, the 5th inst., at 8 p.m., the chair being taken by Dr. J. REYNOLDS, F.R.C.S., President.

A member of the Committee of Instruction was present for the purpose of affording assistance to members requiring it.

At the conclusion of the formal business, Mr. W. H. HARRISON read a paper on "Some Useful Photographic Standards."

Mr. SPURGE, who was present as a visitor, then gave a very full description of the theory and practical use of his sensitometer and standard light for use in connection therewith.

Next meeting, September 19th. — Mr. F. W. LEVETT, "Carbon Printing."

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

ON Monday, September 12th, Mr. BIRT ACRES treated the members to what he called a "talk" on "Halation: its Cause and Cure." In opening his subject, he said, that the halation caused by the reflection of light from the back of the plate was only a small part of that with which photographers had to contend; the greater portion being caused either by (1) the actual spreading of the light rays beyond the edge of, say, the window in an interior view; (2) the luminosity of the air, which was much more manifest to the lens and plate than to the human eye; or (3) the photographing of the atoms of dust floating in the air. Halation of this kind could never be wholly avoided; and, in fact, it would not be proper that it should be, for some of this luminosity was necessary to give a natural result. But this effect was much exaggerated in the negative, and the most successful way he knew of overcoming it in the print was, to first take a somewhat faint print on silver paper, and fix it, then wax it, or in some way render it translucent, and fix this transparent print on the back of the negative in the printing frame, and print through it far enough to correct the excessive opacity of the halation-stricken negative. To avoid that halation caused by reflection from the glass, Mr. Acres recommended backing the plate with Bates' black, which was very effective, was easily applied, and could be as easily removed by a sponge dipped in benzine. He thought this method of backing was more free from objectionable features than any other he had seen recommended.

A most interesting discussion followed, or rather was sandwiched in with the lecture, which was much appreciated.

The voting on the pictures taken at the Strand-on-the-Green outing, resulted in Mr. Gregory's being declared best, Messrs. Pither and Spencer tying for the Hatfield competition.

The next meeting will be on the 25th inst., when Mr. Thos. Bedding will read a paper on "Stereoscopic Photography." Visitors are welcome.

Sheffield Photographic Society.

The ordinary monthly meeting of the above Society was held at the Masonic Hall, on Tuesday evening, Mr. J. W. Charlesworth in the chair. The minutes of last meeting were duly passed, and Messrs. Brooks and Loxley were elected as auditors, after which the photographic exchange was effected and the prints of the last exchange criticised in the usual manner.

Leeds Photographic Society.

September 7th.—Mr. J. H. Walker in the Chair.

Major Darwin's paper on "Lens Testing at Kew," kindly lent by the Photographic Society of Great Britain, was read by Mr. Washington Teasdale, F.R.A.S., one of the respected founders of this Society, who made many useful remarks and explanations, rendering many of the technicalities simpler and more interesting and instructive.

An interesting discussion followed, in which Messrs. J. H. Walker, A. A. Pearson, S. A. Warburton, G. H. Rodwell, and others took part.

A number of very fine slides were afterwards thrown on the screen, contributed by Mr. Washington Teasdale, Mr. Godfrey Bingley, and Mr. J. H. Walker.

A hearty vote of thanks was awarded to Mr. Teasdale for his kindness, and the able manner in which he read the paper.

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Cream (of the World's Fact, Fun, and Fancy) is the title of a new weekly penny paper, which, under the editorship of Mr. Francis George Heath, will shortly appear.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

C. J.—The following formula for an acid fixing bath (Mr. Carbutt's) will probably suit the purpose which you have in view :—

Hypo	8 ounces
Soda sulphite	1 ounce
Sulphuric acid	½ drachm
Chrome alum	¼ ounce
Warm water	1½ pint

Dissolve the sulphite in 4 ounces of the water and add the acid. Then dissolve the hypo in one pint of water, add that: and lastly the chrome alum dissolved in the remainder of the water.

O. C.—We are of opinion that for ordinary views you would gain nothing by use of a screen as you propose. For distant views where there is mist the gain is great, if used in conjunction with colour-sensitive plates or films.

J. J.—We are quite unable to say whether or not the stamps sent are forgeries. They are certainly not printed by any photographic process; but, as you know, the blocks from which they are impressed may have been produced by the zinco process. Why not consult some dealer upon the point raised?

Ticehurst.—It is hardly fair to condemn plates because they will not work satisfactorily with one particular form of alkali. The plates named should be developed with soda, not ammonia.

K. (Punjaub).—Messrs. Penrose & Co., of 8*a*, Upper Baker Street, Clerkenwell, London, supply lined screens for process work.

Constance.—For waterproofing large wooden dishes for developing, nothing is better than paraffin wax applied hot to the warmed wood. A solution of asphaltum in benzole is also effectual. You would find a great advantage in the use of glass-bottomed trays for this work, and you can get them of any size through the dealers.

Sigma.—The method which you describe for vignetting negatives is almost as old as photography itself. For many reasons, the more usual plan of shading in the printing frame is preferable.

J. J. R.—It will be apparent to you, upon consideration, that we cannot possibly undertake to make analyses of half-a-dozen different samples of paper. The work would occupy too much time. The chemical dealers will provide you with filter papers, which are guaranteed to be perfectly free from foreign substances.

Hydro.—The formula which you have adopted for transparencies will give a yellow stain to the plates if air is allowed to get to the surface of the film either during development or between that operation and fixing. You will obviate this by using plenty of solution, and being quick with the water tap afterwards.

C. B.—We do not undertake to answer communications through the post unless under exceptional circumstances.

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A paper-making machine, said to be the largest of its kind in the world, was recently started by the Star Paper Mill Company, whose works are situated near Blackburn, Lancashire. It is capable of making a sheet of paper 143 in. in width, and of practically unlimited length; in actual work it will produce a web of paper, such as used for ordinary newspaper, 140 in. wide, and wound into a roll of about 36 in. diameter. The machine was constructed by Messrs. Bentley & Jackson, of Bury.

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1829. SEPTEMBER 22, 1893.

NOTES.

THE Congress of the P.S.G.B. and Affiliated Societies, for 1893, is to take place on the 10th, 11th, and 12th proximo, when all interested in photography are invited to attend, and to take part in the discussions which arise on the various papers brought before the meetings. We publish a programme of the proceedings on another page. It is expected that some of M. Lippmann's latest specimens of photography in colours will be shown at one of the meetings.

PHOTOGRAPHY seems to be playing an important part in that ghastly tragedy known as the Ardlamont mystery. In the first place, pictures have been taken of the boat in which it is alleged a plughole had been made with a view to scuttling it. Other pictures have been procured of the famous beech plantation where the fatal shot was fired, the work having been done by Mr. Adamson, photographer, of Rothesay.

THE principal intention of the photographs taken on the scene of the tragedy is to show the direction taken by the pellets. For this purpose a man of the same height as the victim was placed in position, where a person in the gully to the west would bring him into line with the rowan sapling and plane tree beyond, where pellet marks were found. Pieces of white calico where affixed to the trees where these marks occurred, so that the position of the pellets could be well understood by anyone with the photographs before him.

THERE has long been an idea current that in the vaults of the National Gallery there lie hidden a number of Turner drawings which never see the light. Some have said that the said drawings are executed in pigments so perishable, that light would cause them to fade into nothingness, as an unfixed silver print would under the same conditions. Others, on the contrary, have argued that the drawings lie where they are from that simple neglect and apathy which are often associated with Government departments.

BUT it turns out after all that the complainants are quite out of court, and that no Turner drawings are languishing, like prisoners of old, in "the lowest dungeon 'neath the castle moat." For, in reply to a question asked in Parliament anent these visionary works of art, Sir W. Harcourt stated that "no water-colours by Turner remained unexhibited, but only some rough sketch notes, chiefly in pencil. In 1891 the whole of Turner's drawings were carefully sifted, and everything fit for exhibition was selected. Out of those it was found possible to form a loan collection, which was at present in the Ruskin Museum at Sheffield. There were now four circulating collections, each of which contained fifty or more water-colour drawings and sketches by Turner." It will thus be seen that our great English landscape painter is by no means neglected.

A CONTEMPORARY gives a recipe for making "spirit pictures," but a better name for such productions would be bogus-bogey photographs. The recipe is shortly this. The negative which is to play the part of ghost is placed wrong side before in a printing frame, and beneath it is exposed in the sun a piece of platinum paper for thirty seconds. This short exposure causes no visible image, so that a number of pieces of paper can be impressed with different "ghosts" without fear of detection. The prepared papers are then exposed with other portrait negatives in the usual way, and the ghostly presence is upon development visible in the background.

DR. L. BREWER HALL, of Philadelphia, has sugquality, for it is well to keep in mind that an indication of character adds as much to a portrait as does action or life to a pose, avoiding always the commonplace. Tameness in expression, pose, or lighting is contemptible, and will rob even the finest execution of every charm ; at the same time an evident straining for effect in pose or lighting is objectionable to any refined taste, and should be avoided as strenuously as the other extreme, however true it may be, that the daring innovator may sometimes produce charming effects that may not come strictly within the approval of a too cultivated taste.

In my opinion a resort to ultra effects is only justifiable in cases where the face and form of the subject are not amenable to ordinary methods, and when it may be desirable or profitable to experiment.

When posing a single figure in either full or three quarters, certain accessories may be used with good effect —but care should be exercised in making the model the central point of attention ; everything should be subservient to the portrait.

The three-quarter length will always be better without accessories unless in a sitting or leaning position, in which case the proper support will necessarily be provided.

Groups of two or more require the exercise of common sense and a knowledge of the capabilities of light and lenses. In form, the group should be as symmetrical as may be, with dark complexions and dresses placed next the light ; and in large groups, more attention should be given to the general than to individual effect.

The best photographic light is received from two windows—a top window or sky-light joined to a side window, which shall reach to within three feet of the floor of the studio.

The dimension of the sky-light should not be less than ten feet square if space permits, but preferably larger if convenient, the pitch of the upper light only enough to easily and safely carry the snow and ice of winter and shed the rain of summer without leakage.

The quality of the top light is softness and delicacy of detail, but with two heavy shadows beneath projection.

The quality of the side light is vigorous harshness with abrupt lateral shadows.

The one corrects the other to any extent desired, so that having a top and side light properly shaded with movable curtains, every description of face may be so lighted as to make prominent all the good points and to lessen or entirely suppress all that is not desirable.

By a proper arrangement of the top and side light we can give boldness and prominence to small or weak features. We can by similar means soften and refine coarse and rugged faces.

By seating the model facing the light and at a suitable distance therefrom it is possible to remove to a great extent the appearances of age ; the wrinkles and crowsfeet are lighted up, but cast no shadows.

In fact it is possible to change the shape of the face of any subject to a great extent by judicious management of the light.

Having a good light, use all of it that may be used with advantage according to the method of lighting adopted for that particular subject.

Many photographers shade their lights down closely and give long exposures ; but the preponderance of opinion among artists of recognised ability is in favour of using all the light the model will bear and make shorter exposures comparatively, thus obtaining bolder modelling, finer gradations, and more brilliant effects, while not losing the softness that is characteristic of all really first-class work.

I have stated that time of exposure has much to do with the quality of the negative ; it is also very true that the character of the dry plate has an important bearing on the resulting negative. I have always found that thinly coated plates invariably had a tendency to make negatives whose printing quality tended to contrast because of the fact that the shadows were always thinner than they looked. Such plates require longer exposure, and the subjects should be more evenly lighted than when plates of a thicker coating, although of even sensitiveness, are used.

The effect of the lighting of the subject will not be the same on the sensitive plate as it is on the retina of the operator's eye ; therefore the photographer by closely observing the action of the lens will learn to see photographically, or to understand the precise effect on the sensitive plate of any method of illumination he may employ for his subject.

Also he must understand that the time of exposure will greatly modify the effect he may be desirous of obtaining.

The subject should be posed well out under the light and generally at a proper distance from the background to get what is called atmospheric effect. Then if the whole figure or head is well lighted a proper exposure will give the effect of daylight illumination, while a short exposure will produce the effect of artificial lighting.

By daylight illumination I mean that the figure or head will be fully lighted with soft modellings and easy gradations from high light to transparent shadows, while by artificial illumination the lights are chalky or flatted and the gradations are abrupt to heavy shadows. I therefore consider that it is safer to err on the side of over-exposure than to under-expose, although I have known eminent photographers to lean constantly to the short exposure for picturesque effects.

Picturesque effect of pose and light should be aimed for in all photographic portraiture, and a thorough knowledge of the peculiarities of light and lens should be acquired by the artist so that his judgment may ever readily arrive at the proper methods of arrangement of the light and the exposure for lens to produce the effects desired for any face or figure with as little delay and hesitation as possible.

This promptness of decision will secure the confidence of the sitter and facilitate matters in a large measure, the natural result being more patrons, enlarged business, and increased profits. That such may be the good fortune of all who have listened to my views on the subject under discussion is the sincere wish of your friend and fellow-labourer.—*Read before the World's Congress of Photographers.*

CARBON PRINTING.

BY W. E. DEBENHAM.

MR. DEBENHAM said carbon printing was a large subject and one which included more than he would have selected to deal with in a single evening; but the late Mr. W. Bedford had promised to give a demonstration of the process, and as Mr. Bedford had, unfortunately, been taken from them, he (Mr. Debenham) had undertaken to take the matter up.

Carbon printing went into a good many ramifications which he did not propose to follow on the present occasion; and he simply intended to go through the process as it was likely to be worked by those who had not hitherto been accustomed to use it.

The object of these demonstrations had, he thought, been misunderstood in some quarters; he had, for instance, received a letter asking whether he was going to bring forward anything new, in which case his correspondent would like to come and see it. He did not think these demonstrations were intended to show anything new, but rather to bring certain branches of photography under the notice of members who might not have practised them, and to make it easier for them to start working such branches. There were many members who, confined themselves to one or two particular lines, perhaps exposing and developing gelatine plates, and possibly, printing in albumen or gelatine, but who would like to undertake other work if they could see their way to getting a fair start without too much difficulty; and it was to smooth the way for such as those that the demonstrations had been instituted.

The process under consideration was called carbon printing, but it was not at all necessarily or essentially carbon that was used, and it was often and, perhaps, better called pigment printing. There were certainly other pigment processes, but the term "pigment printing" described this fairly well.

The essential principle of it was this: that bichromated gelatine, when acted upon by light, underwent a certain change, in virtue of which the gelatine was no longer soluble in hot water. If, therefore, with the gelatine were locked up a certain pigment—and carbon was originally chosen as being unchangeable and permanent—by exposing a part to the light and washing away the rest it was obvious that some kind of a picture would result, and that was the origin of the process. In most prints, so-called carbon, carbon was still used largely, some other pigment being added for colouring, because the colour of carbon alone, as obtained in lamp-black or Indian ink, was not to many people so agreeable as when some other tint was mixed with it.

There was this peculiarity about carbon printing: that it was necessary to wash away, or "develop," as it was termed, from the side of the film which had not been exposed; and consequently a reverse image was obtained. The paper upon which the gelatine was coated was simply used for a convenient support for the sensitive material, which would be affected by light to a greater or less depth according to the degree of transparency of the negative. If, then, the print were at once placed in hot water for development, those parts which had been affected by exposure to the greatest extent would remain on the paper; but where the film had only been rendered insoluble to a slight depth, the water would get underneath and cause those portions to float away, consequently there could only be two tones—black and white—and the half-tones would disappear.

In order, then, to secure the half-tones, the unaffected gelatine must be washed away or developed from the side next the original support. That was at first done by cementing the sensitive surface with indiarubber to paper or other support; when, the original support being removed, the development could proceed from the back, and a half-tone picture could be produced.

This, of course, gave an image reversed side for side; and the same was the case with ordinary carbon printing to-day, for by developing from the side which had not been exposed we got a reversed image, in which the right-hand side became the left. For some purposes to which carbon printing was applied this was immaterial. The process was constantly used for printing enlargements, and it was only necessary to make a reversed negative for the enlargement—which could be done easily enough in a camera—and that negative which, if printed in platinotype or silver, would give a reversed image, would in ordinary carbon printing give an image in its proper position.

Where the carbon tissue was placed on the paper and developed direct, it was called "single transfer." It was found that it was not necessary to use a cement for the purpose of fastening the tissue to the paper support. If the tissue were moistened with water so as to cause the gelatine to commence to swell, and if before the gelatine had swelled to the full it were placed in contact with an impervious substance, such as glass, and squeegeed on to it, the gelatine would go on absorbing the water between the film and the glass, and in so doing it would be cemented on to the glass. Single transfer on glass might be and was accomplished in that way for the making of carbon transparencies.

Mr. Debenham then proceeded to demonstrate the process, sensitising a piece of pigmented tissue in a solution of bichromate of potash. He said he used the solution somewhat weaker than was usually recommended—namely, an ounce of the salt to a quart of water, and sometimes even weaker than that. If the crystals were placed in the bottle in a muslin bag, with the top of the water just above them, they would easily dissolve, and the muslin would also filter the solution. The material called carbon tissue sensitised in this instance was "red chalk tissue," pigment mixed with gelatine and spread upon paper for convenience, and in that state it was not sensitive. The tissue was sold ready sensitised, but he preferred to sensitise it himself as required.

Ready-sensitised tissue would keep somewhat longer than home-sensitised, but would not print nearly so quickly. The main point, however, was that one was obliged to use up a quantity of ready-sensitised tissue or it would become useless; while if one sensitised the tissue one's self, only just as much as was required need be prepared.

The tissue was sensitised by complete immersion. He had not found that the addition of ammonia to the bichromate solution improved the keeping qualities of the tissue; but if the bichromate contained an excess of chromic acid, ammonia would no doubt prove advantageous. The sensitising could be done in a good light, the tissue being scarcely if at all sensitive while wet. The immersion could be continued until the tissue was pretty well softened, and it should not be so long as to cause the tissue to curl back upon itself, or it would be inconvenient to work.

Upon removal from the sensitising solution, the tissue was squeegeed on glass to get rid of superfluous moisture, and it was generally advised to then remove it from the glass and hang up to dry. Mr. Debenham. however, thought it better to leave the tissue to dry in contact with the glass. The surface was finer if dried in contact with the glass; and being finer it more perfectly rendered all the minute details of the negative, and as it need not be stripped from the glass until required for use the surface was kept from the air. Also, if dried in dry weather, the tissue was apt to curl very much, but if dried on the glass it was flat and convenient for use.

When it was intended to dry the tissue in contact with the glass, it was necessary to prepare the glass by rubbing it with talc, or the tissue would stick to it. The secret of this operation was that the talc must be rubbed in hard; mere dusting on and wiping off would not suffice; it must be rubbed in thoroughly, and then the talc may be apparently all wiped off. If this was done carefully, the tissue when dry could easily be stripped from the glass. The wet tissue was laid on the glass and covered with a piece of waterproof sheeting, and squeegeed first from the middle to one end, and then to the other. If this was done at night, the tissue would be dry and ready for use the next morning. He had sometimes got it ready in an hour by placing it at a certain distance from a fire, and, of course, away from the light; a gas stove with a kettle on it might be used.

The paper being sensitised and dried, the next step was the printing; and in this respect there were one or two peculiarities about carbon printing. In the first place, if one were merely to print on a piece of carbon tissue as on albumen paper it would be found that it would not stick to the paper for development. Where dark portions of the picture came near or up to the edge of a carbon print the gelatine had so little adhesiveness that it would come off unless surrounded and held round its edges with some gelatine which had been less acted upon; therefore what was called a "safe edge" was used in carbon printing, the margin of the negative being sometimes painted out and sometimes blacked out with a cut-out mask.

Mr. Debenham showed a sample of a double safe-edge which he used, consisting of a folded cut-out mask of opaque paper for placing on both sides of the negative, the opening next the film being very slightly larger than the other, and marked with a line to show the exact position to be occupied by the tissue.

If the simplest form of safe-edge was used, paint or an opaque mask on the film side of the negative, any dark part of the picture near the edge would be as a vertical wall of black on the surface of the paper or glass on which it was developed, and the film left by the unexposed part of the tissue might not be strong enough to support that wall, and the water would consequently get under it and wash it up. If, however, the safe-edge were outside the negative, instead of between the negative and the tissue, the wall of black near the edge of the picture would take a slanting direction, and offer a greater resistance to the water in development.

If the print is from an inverted negative, all that has to be done is to develop it on a piece of "single transfer paper," which was an article of commerce—that is, if the resulting print was to be on paper. The tissue had to be soaked in water until a certain quantity of water had been taken up, but not all that it would absorb. If it remained in the water until it had absorbed all that it would absorb, it would not take up the water between itself and the surface upon which it was to be developed, and consequently there would be no adhesion. The tissue must be left in the water until it became tolerably soft, or else it could not be got in good contact; but he thought the sooner it was out and squeegeed down the better. It was not always absolutely necessary to blot off the tissue and its adherent support, but it was rather better to do so, as the water was thereby removed and the tissue left with a greater appetite for taking up what water there might be between the two surfaces, so as to cement them together.

Mr. Debenham then proceeded to squeegee a print on to a piece of finely ground opal glass for double transfer. The print, he said, would be developed on the glass but not left there; it would be stripped off on to a piece of paper, and so would present itself in its proper position, right side to the right.

The double transfer process was necessary for landscapes, and, in fact, for most purposes where a reversed negative was not used. The glass or other support in double transfer had to be prepared by rubbing on a very small quantity of a solution of beeswax and resin in turpentine, otherwise the print would not strip.

The exposure had no visible effect on the tissue, and it was necessary to ascertain the time of printing by means of an actinometer. He thought the most convenient form of this instrument was that introduced by himself in 1877, and now, with a trifling alteration, obtainable as "Sawyer's Actinometer." But he particularly wished to show how to work the process with as few appliances as possible; and to this end he described a simple form of actinometer, all but the head of a portrait negative of average speed in printing being blocked out, and that head used as a guide by printing on albumen or gelatine paper. The carbon tissue would, with a negative of equal density, be sufficiently exposed in from one-third to one-fourth of the time necessary for a silver print.

The print and the single transfer paper having remained for a few minutes were placed in hot water. Mr. Debenham remarked that he did not use thermometers in this process, not because he did not like exact measurements when they could be had, but because different tissues varied as to the heat they required, and the same tissue would vary according to the time it had been kept.

When the original support of the tissue could be slightly shifted sideways by pressure with the fingers it was ready for stripping, during which operation the whole should be carefully kept under water. After a little while, the hot water could be flung over the print, when the unaltered gelatine would be washed away, leaving the picture on the transfer paper or other support.

Until the safe-edge had been all washed clear it was evident that development had not proceeded far enough; it would not be completely removed, and by looking closely a certain amount of deposit could always be seen.

The print developed appeared to have been somewhat over-printed, and Mr. Debenham remarked that there was some control in such a case by using hotter water and prolonging the development, which was done, and eventually development was stopped by changing the print into cold water. The prints would not bear treatment with boiling water.

The print which had been squeegeed on to opal glass having been developed in a similar manner was afterwards placed in alum solution to harden the film. In the case of double transfer the plate or flexible support, or whatever the image was developed upon, was treated in the same way; but after removal from the alum solution and washing, the print was placed in contact with paper prepared with gelatine, and when dry it would leave the double transfer paper and adhere to the final support.

In what was known as the Lambert-type process a piece of plain or opal glass was waxed and coated with collodion, and the print developed upon it when dry; it was spotted with oil colour and then transferred, so that there was no spotting or other work upon the glossy surface of the print.

It had been said that the action set up in the tissue by exposure to light was continued in darkness, prints partly exposed one day and developed the next showing no signs of under-exposure. This had been called the continuing action of light. It might be, too, that as the whole tissue was becoming less soluble, the more a certain amount of exposure would suffice to harden it.—*Photographic Journal.*

BEAUTY COMPETITIONS.

A VALUED correspondent thus expresses his opinion of this form of business enterprise:—

"Of all forms of increasing one's business, one of the most delusive is the arrangement made between periodicals anxious to increase their circulation and photographers, in regard to what is known as beauty competitions. A friend has given us his experience. The competition was for beautiful children, and being the proud possessor of 'quite a Millais' picture child,' to quote mamma's description, he took his offspring to one of the photographers in the list given in the journal. 'The perfunctory and depressing manner of the operator,' writes the disappointed father, 'was simply appalling. First, he set my eight-year-old daughter in a Wardour Street chair with a big square back which stuck a foot above her head. The grim formality of this arrangement was, however, apparent even to the photographer, and he suggested kneeling on the chair. Kneel accordingly she did. Then he crossed her arms, one hand sticking up and the other bent down, with the elbows resting on the chair-back, on which was the inevitable goatskin rug, without which nowadays no studio is complete. "Look at the lens," said he, and bobbed his head under the focussing cloth.

"'The posing was finished, and anything more stiff and unchildlike than the attitude of my unfortunate daughter I never saw. She evidently regarded the arrangement as decidedly penitential, and was nerving herself for the worst. "Can't you smile a little more?" said the melancholy operator. Smile! Who on earth could smile at such a bidding? My daughter certainly couldn't. Then came the solemn period of the exposure, during which I hoped for the best, though no exposure, whether short or long, I was sure, could alter my unhappy child's rigid stare at the uninspiring brass tube, the pole-like attitude of the neck and head perfectly perpendicular with the body, the inane, unmeaning pose of the hands and arms. "I will take another one," said the sad young man mechanically. "Please smile a little more," as though children carried smiles in their pockets to be produced when asked for! I longed to suggest that the head should be inclined a little towards one shoulder, and that the view of the face should not be so uncompromisingly full, but I dared not. I had paid no money for the photograph, and I felt I had no right to interfere. So the thing went on to the bitter end.

"'The result may be anticipated. The photograph was ruled out of competition, and ignominiously rejected. This did not matter very much. What puzzled me was how much the photographer got or expected to get out of the transaction. None of the sitters paid him anything; his recompense must therefore have been the "advertisement" afforded by the publication of his name, and the possible chance of selling a few extra copies in cases where the photograph pleased. But if the experience of others was the same as mine, I'm afraid orders for copies were very limited.'

"Judging from the particular photograph mentioned, we are afraid so too. It is a question whether under such circumstances good work can ever be produced. We believe we are correct in saying that most photographers have come to the conclusion that the free portraiture system does more harm than good, or if it is allowable in the case of well-known individuals, it is entirely useless in regard to the rank and file of humanity."

A GROCER in South London threatens to give away "your photographic portrait with a pound of our two-shilling tea," provided he can satisfactorily complete an arrangement of flash-light and ferrotype dry plate semi-automatic camera.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, SEPTEMBER 22, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

The Photographic News.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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THE CONTINUING ACTION OF LIGHT.

IT is well known by experienced workers of the carbon process, that if the operation of developing the tissue has to be delayed for any reason beyond a few hours, the exposure to light must be proportionately shortened, because of what is called the continuing action of light upon the sensitised film. This action indeed is taken advantage of when under-exposure is suspected, the tissue being in such a case retained until this persistence of light action has had time to give the intensification which the picture would otherwise lack. It has for a long time been considered probable that other surfaces made sensitive to light besides bichromated gelatine are subject to this continuing action of the light in darkness, and the subject has from time to time cropped up in the various photographic publications. Certain workers who have returned from a photographic tour with a big batch of negatives in embryo, which have turned out to be all over-exposed, have, perhaps, been glad to refer the accident to the continuing action of light upon their plates during the interval that has elapsed between exposure and development. But at the same time more careful and experienced operators have been forced to the conclusion that a plate does gain in intensity to some extent by being set aside for a period before development. The professional photographer is of necessity obliged to test a successful exposure by immediate development, so that his sitter may be released; the continuing action of the light on his gelatine plate does not therefore come into consideration; but for the casual worker, who exposes and developes his plates in more erratic fashion, the question is one which cannot be ignored.

The subject has been revived in an article lately published by our French contemporary, *L'Amateur Photographe*, a translation of which appears on another page. In this article the writer, M. Guillaume, details certain experiments which he has made, by which it would seem that the action of the light on a gelatino-bromide plate kept in darkness after exposure in the camera persists for about thirty hours, and after that time ceases. But he informs us that experiments are now in progress by which it will be seen whether the conclusion at which he has arrived is the correct one, or whether weeks' or months' delay before development have any further effect upon a plate. The results of these experiments, although we must wait for them for some time, will be looked forward to with interest.

In order to make the results of such experiments trustworthy, several precautions must be observed. In the first place, the plates experimented upon must be of one reliable brand, and must also be the product of one batch of emulsion. It would be necessary, too, to set aside a certain number of unexposed plates, which should be submitted to sensitometer tests from time to time, in order to note increase or decrease of sensitiveness; for it may be that this alteration in the rapidity of a plate—which is a well-ascertained fact—may have some definite relation to the question under investigation. There are many other precautions which will occur to the careful experimenter as being necessary to observe if these trials are to be brought to a satisfactory issue, and it would be well if simultaneous experiments were undertaken in this country for comparison of results attained.

That continuing light action—or phosphorescence, as it has generally been called—is far more common than is commonly believed was proved long ago by Becquerel's experiments, and the phosphoroscope which he devised is figured in some of the old text-books. This instrument consisted of a disc-like box containing compartments in which specimens of different substances to be tested were placed. When this disc was revolved each compartment passed an aperture through which light was admitted to the substance under examination, and, a moment afterwards, the same substance was viewed in darkness through an attached eyepiece. By this means it was proved that paper, sugar, chalk, and many other common substances retained the visible impression of light for a short time after insolation. This entire subject is fraught with much interest, and those who have time at their disposal could not employ it better than in endeavouring to solve some of the problems which it presents. It is naturally a difficult, and often an impossible, thing for a worker engaged in other pursuits to follow up a line of investigation which may take many months before any definite result can be arrived at; but, if two or three members of a photographic society or club share the work between them, they will often find it far more interesting than burdensome. The question of the continuing action of light on gelatine plates is one which might worthily engage their attention.

MARINE PICTURE-MAKING.

UNDER this title, Mr. Clement Williams, who has made photography of the sea his special study, contributes to the *American Amateur Photographer* an article which is illustrated by a very fine seascape in collotype. The original picture was medalled at the last Philadelphia Exhibition. From the article in question we quote the following :—

The boundless sea and the heavens above offer, possibly, the grandest and sublimest inspirations to the art-loving student, and has undoubtedly provided a never-ending theme for some of the sweetest music sung by the poet. They are alike sublime in their grandeur and glory, awful in majesty and wrath. The calm and peacefulness of death oft lingers over the twilight sea or reigns benignantly in the sky above.

They stand out alone and unique in their ever-changing and varying aspects, for they never repeat themselves.

The heaving sea, gently undulating; the foaming billow, the dancing ripple and the scudding cloud, are born and die, flashing by like a beautiful dream that is gone for ever, and their existence was but transient.

On the other hand, the sylvan scenes of hill and dale, the dark gloom of the forest and frowning cliff, are like the rock of ages; they change but slowly, and are with us always, so affording the picture-maker opportunity for careful reflection and study. We may liken marine picture-making, in its highest and noblest aspects, to a poem in black and white, for nothing short of poetic expression should be the goal of all true artists, for by this means the sea and sky become sweet in their glitter and glamour and sink deeper into our souls.

Undoubtedly the topographical snap-shot work of photographing racing yachts and breaking waves is interesting, as may be the taking of balloon ascents and express trains, and the results may be on occasion pretty to the eye, but it should be remembered that mere prettiness is but skin deep. Such may be likened to a beautiful body without a soul; it can create no deep and lasting impression. It is not of the superficially pretty I would write, but rather of pictures possessing a motive, ever keeping in view that a thing of real beauty is a joy for ever, playing, as they do, upon strings that stir up chords of melody, that awaken the deeper and finer emotions of our spiritual nature.

The late Lord Tennyson, poet-laureate, when in the mellow autumn of his days, took up his pen and, as if inspired by the spirit of prophecy, gave to the world that beautiful poem, "Crossing the Bar." This great master of poesy and of heaven-born thought turned to the "Sea and Sky," and gazing across the great ocean into the far beyond, saw something deeper than the prosy, superficial, flat-planed sheet of water with its straight-ruled horizon.

And then he sang sweetly:

"Sunset and evening star,
  And one clear call for me,
And may there be no moaning at the bar
  When I put out to sea.
But such a tide as moving seems asleep,
* * * * *
  Too full for sound and foam.
Twilight and evening bell
  And then the dark."

No language or thoughts could more beautifully express the peaceful passing away of a tired soul to that far-off haven where the weary are at rest, and possibly no other theme could so admirably have given expression to the inspiration of the poet as the sea and sky.

My object in thus writing has been to show that marine picture-making, if pursued with a motive and and purpose, is capable of being exalted to the dignity of a *fine art*. I go as far as this, but to prevent carping I will also say it offers a far higher sphere of work and thought than is commonly supposed. Let everything you do be well thought out. Aim high, and if you cannot find a motive for a picture deeper than the surface of your paper, do not take it, for it will only prove to be an addition to the too frequent meaningless work that is already too plentiful for the higher reputation of photography.

The quartette of pictures exhibited by me this year at Philadelphia were produced by me to illustrate Tennyson's "Crossing the Bar." It was in the fall of last year that I went to the sea-coast intent upon the production of this series. With me I had a 20 by 16 camera, slow plates, a single Meniscus lens of about thirty-two inches focus and an ordinary drop-shutter, having an opening in the drop, with provision to glaze the same with smoke-tinted glass, as occasion required; also ordinary caps such as are used in front of a lens—but these glazed similarly —for use at the back of the lens, when I considered this treatment preferable; also a very strong tripod stand having unjointed legs. Thus equipped I found myself on the shore—by the "Sad Sea Waves"—studying my theme, and no finer studio can be found for inspiration. I tried to enter into the feelings of the poet, and very fastidious and exacting I became, for the more I thought out the subject the more I felt the depth of feeling and pathos and intensity of sentiment that were bound together in these few simple lines. I don't know if I ought to make public confession—I did not feel I had in any way, even in a small way, fully to have realised the ideal I aimed at until seventeen days of watching and waiting had come and gone.

The subject of the illustration is intended to pictorially express the third couplet :

> "But such a tide as moving seems asleep,
> Too full for sound and foam."

The sky an evening one, quiet, still, reposeful, having more suggestiveness than crisp definition. A full tide with scarce a ripple, with patches of sea scum lazily drifting along—in fact a twilight calm, possessing a certain mysterious depth. A boat with sails set, but so straight and upright as to betoken hardly any movement. How far I have succeeded in translating to paper the poet's vision I leave it to others to decide. My pictures are always printed from one negative, for double printing —picture manufacturing by patchwork—finds no favour in my eyes; it comes under the head, "it's pretty, but untrue."

I am a great admirer of the carbon process, and until fresh evidence turns up my verdict is that it is the finest all-round printing process in the world.

ISOCHROMATIC PHOTOGRAPHY.

BY G. CRAMER.

AMONG the great discoveries and achievements that characterise our present century and have accomplished results never before dreamed of and formerly deemed impossible, photography holds a prominent place in practical utility as a helpmate to art and science.

Portraiture has been brought to simplicity, and in the fraction of a second we can secure the features of those who are dear to us. Foreign countries and nations are brought to our sight in pictures produced by the camera ; movements of animals, too quick to be distinguished by the human eye, are truly and accurately recorded by the highly sensitive photo dry plate, the stars are photographed as well as the minute bacilli and bacteriæ whose multitudes inhabit the drops of water in the cells of animal life, and which in many instances are the causes heretofore unknown of diseases.

Since photography has rendered it possible to secure the rays of light to the sensitive plate, it has been the aim of scientists and practical workers to bring it to perfection, and the greatest improvements have been achieved in the preparation of dry plates ready for use, and of the utmost sensitiveness. The great desideratum, to obtain photographs in natural colours, is now brought in the reach of possibility, as shown by the fine specimens of reproductions which are on exhibition in the photographic department of our great World's Exposition, and the time may not be far distant that portraits and landscapes are photographed in all the beautiful tints and colours as seen in nature. The most important step in this direction was the production of colour-sensitive plates by which one of the shortcomings of photography is corrected—that is, the insensitiveness of the ordinary plates to the yellow, orange, and red colours, which cause these colours to appear much darker, while the blue and violet appear much too light in the ordinary photograph.

The aim of isochromatic or orthochromatic photography is the production of plates equally sensitive to the different rays of the spectrum, so that in the monochrome of the finished picture all the colours are rendered equally correct in their respective values.

This colour-sensitiveness is obtained by the addition of certain ingredients, mostly of the eosine group of aniline dyes, to the sensitive bromide of silver emulsion, and the plates so prepared are called isochromatic or orthochromatic plates.

A great drawback to the introduction of isochromatic plates into general use has been the necessity of a colour screen in order to obtain the isochromatic effect. A yellow glass had to be placed before or back of the lens, or a yellow pellicle in place of the diaphragm to filter the light and to subdue the great actinic power of the blue and violet rays. The isochromatic effect being increased in the same proportion as a screen of deeper yellow colour is used, it necessarily follows that the required exposure is prolonged in the same ratio and to such a degree that the use of a colour screen for portrait work and instantaneous exposures is out of the question. If the yellow screen is not perfectly even in structure and thickness, and absolutely plain, it will cause distortion of the image by aberration. Change of chemical focus and reflection may also be caused by its use, and therefore it is apparent that plates which produce the most isochromatic effect without the aid of a colour screen are the most valuable.

As such plates can now be obtained which combine great rapidity with good colour-sensitiveness, and are no more difficult to work than ordinary plates, their advantages should be appreciated by the photographic fraternity.

In portrait photography the blue eyes, auburn hair, are rendered more truthfully, imperfections in the complexion, such as freckles, are less noticeable, and dresses of any colour are photographed correctly, so that ladies need no longer consult the photographer as to what colour of dress to wear when having their pictures taken.

In landscape photography the main advantage of the isochromatic plate is that distant objects are photographed much more distinctly than with the ordinary plates. A slight haziness in the atmosphere is neutralised by the use of isochromatic plates, while an ordinary plate would not produce any satisfactory result under the same circumstances. White clouds in a blue sky cannot be photographed except with the isochromatic plates, and how much clouds add to the beauty of a landscape is known by everybody. In sunset scenes the superiority of the isochromatic plates is as apparent as in the autumn landscapes with their wealth of yellow and orange tinted foliage.

In seascapes or marine views the horizon is not lost, water and sky being properly rendered.

In commercial photography the instances where isochromatic plates should be used are too numerous to mention. Woodwork which is generally of a yellowish tint, is photographed more perfectly; inscriptions on waggons, railroad cars, samples, floral designs, &c., which may not show at all when photographed with an ordinary plate, are perfectly reproduced.

Now, for the copying of paintings in oil or aquarelle nothing but an isochromatic plate should be used, and its advantage for this class of work is most strikingly apparent. In an old oil painting the lights are generally yellow, while the half-tones are of a bluish tint. It is impossible to obtain a good copy of such a painting with an ordinary plate. Plates of full isochromatic effect are necessary for this purpose.

Another advantage of the isochromatic over the ordinary plate is its greater sensitiveness when the light is yellow, as is frequently the case in fall when the sky is cloudless, or in photographing by gaslight.

I have now said enough of the advantages of isochromatic plates, and beg to be excused if I have made statements of facts supposed to be well known; but the isochromatic plate being undoubtedly the plate of the future, it seems to me that its full value should be more generally understood and appreciated.—*Read before the World's Congress of Photographers.*

THE PERSISTENCE OF LIGHT ACTION ON GELATINO-BROMIDE PLATES.

BY E. GUILLAUME.

THE persistence, in darkness, of light action upon certain photographic preparations, after they have been submitted to that agent, is a fact that has been recognised for some time.

This continuing action, varying according to the nature of the sensitive surface which has seen daylight, is little, if at all, noticeable upon such thin and vitreous matter as albumen and dry collodion; but it is manifested very perceptibly upon gelatine, the spongy nature of which is eminently adapted to the storing of light. Monckhoven, in his manual of Carbon Photography, has specially noticed this property of gelatine, and has asserted that the impression upon paper continues even after the action of the light has ceased in such a manner that if two prints from the same plate, obtained upon the same paper, at the same degree of the photometer, that of which the development is delayed until the next day differs considerably from that the development of which has immediately followed exposure to light.

In the course of long and constant practice, I myself have often had occasion to apply with success the principle referred to by Monckhoven of leaving till the next day the development of a series of prints from the same plate, all exposed for the same time, and one of which, developed immediately, would exhibit under-exposure.

Certain authors believe that the progressive intensity which is acquired in this manner by carbon tissue, when its development is deferred, is to be attributed solely to the insolubility which in the course of a few days is spontaneously produced in bichromated gelatine.

This spontaneous insolubility may, it is true, co-operate to a certain extent with the consecutive action of light in intensifying too feeble an image; but, as in the case of postponement of development to the next day or the day after, the employment of water sufficiently warm makes it possible to obtain upon the coloured tissue the pure lights which ought to form the absolute whites of the picture without the risk incurred by delay of the tints and half-tints being destroyed.

These considerations have led me to inquire if the same results produced upon bichromated gelatine could not be produced upon gelatino-bromide plates, and the answer I have gained from my experiments has been in the affirmative.

A plate (subject, a landscape with strong contrasts), after having been exposed during a sufficient time to give a thoroughly satisfactory negative, has been (we will suppose) cut in two pieces. Of these two pieces, one has been developed immediately, one hour after exposure, and the operation has been protracted until the developer no longer brings new details to light, and indicates, by a suspicion of fog mist, that the operation is complete. This half of the image, satisfactory enough in its entirety, leaves, let us suppose, something to be desired with regard to detail in the shadows.

The other half, developed the next day, thirty hours after exposure, by means of a developer vigorously composed of the same elements as that employed on the previous day, and under absolutely identical atmospheric conditions, has produced an image more clearly detailed in the shadows, more accentuated in the light half-tints—in one word, more complete and more harmonious than the former.

This experiment, varied at different times by dividing an exposed plate into three, four, or six pieces, separately developed at intervals of three, six, and fifteen days, has led to results similar to those of my former essay, but only as regards the part developed without delay, compared to those of which the development had been deferred, these last not exhibiting any sensible difference one from the other. From this it would seem that the persistent action of light does not prolong its effects beyond twenty-four or thirty hours, but that, at the expiration of that time, these effects continue to subsist during at least fifteen days, and, I have reason to believe, during many months, as I hope to prove later on.

It seems to me that, in this consecutive action of light operating in darkness upon the different parts of the plate, proportionately to the impression which these parts have previously received in the camera, the image is more brilliant and more harmonious than that which could have been obtained by any other means. This point, however, should be studied and elucidated.

It is a tradition, and has even been established as a rule, that, in order to obtain from a gelatino-bromide plate a negative possessing all the qualities which may be expected after correct exposure, it is best to make the interval between exposure and development as short as possible. This is a heresy which should be denounced, at least, if I may be allowed to say so, in cases where the pose has necessarily been very rapid, as it generally is for portraits of children and for the reproduction of objects in movement.

It is usual with professional portrait takers, in order to ascertain the result obtained under such conditions of rapidity, to proceed, before the departure of the sitter, to a development of the plate. Amateurs, again, generally hasten, on their return from an excursion, to shut themselves up in their dark-rooms in their anxiety to know the result of their operations in the field. In the former instance, portraits too rapidly exposed are injured, details in the dark portions being quite lost, and it is only by aid of retouching that they become capable of making acceptable pictures.

In the second case, in addition to this hardness of contrasts, instantaneous photographs are rendered cloudy in consequence of the development being carried too far, with the object of forcing into view details which refuse to appear in the shadows.

Now, if these operators had in the one case the opportunity, and in the other the patience, to defer till the next day the development of their plates, thus leaving to the persistent action of light the time to accomplish its supplementary work, the results obtained would be far more satisfactory than those gained by immediate development.

A gelatino-bromide plate, after the moment, when in the camera, it receives impression by light, passes through three different phases of very unequal duration.

The first of these phases, the shortest, is that which constitutes the subject of this article—namely, the continuing action of light upon the sensitive coating. As I have already stated, this phase does not last longer than twenty-four or thirty hours. Much longer than is generally supposed is the second phase, comprising the lapse of time during which an exposed plate preserves, in a stationary condition and without any depreciation, the direct impression received in the darkened room, and that additionally acquired during the first phase. Personal experience justifies me in asserting that, two or three months after exposure, a plate of good make and of average rapidity is capable of giving at development as good an image as if this development had been effected within a day or two of exposure. Lastly, the third phase, very slow in its evolution of diminution, has its starting point at the moment when the depreciation of the impression received by the plate begins to operate gradually, until the day when the plate, while preserving a sufficient degree of sensitiveness to receive a new impression, will no longer, by the aid of the most energetic developer, present the slightest trace of the original image.

I do not know if, since the employment of gelatino-bromide plates, any investigations have been made with regard to this subject. In the meantime, it should not be without interest to the scientific photographer to know that at this time certain patient students are sacrificing a certain quantity of good plates, which, all exposed on the same day, will be successively submitted to development at intervals of two, three, six, eight months, a year, two years, &c., &c. The ulterior result of these researches, and the notes taken of them, will, it is hoped, elucidate the question as to the duration of the sensitiveness of the plates, and of the impression which they received—a question which, bearing in view the quasi-infancy of the gelatino-bromide process, has never been until now solved in a satisfactory manner.—*L'Amateur-Photographe.*

CENTRAL PHOTOGRAPHIC CLUB.

A LARGELY attended meeting of members of the Central Photographic Club and others interested was held at Coleman's Hotel (late Ashley's), Henrietta Street, Covent Garden, W.C., on Wednesday, September 13th. The meeting was called to give members an opportunity of becoming acquainted with the premises the Executive had chosen, as well as to elect officers, receive report of progress, and consider certain desirable alterations in the rules. Mr. George Mason occupied the chair, and among those supporting him were—Messrs. J. Howson, T. Fall, Birt Acres, A. C. Edwards, R. Beckett, E. J. Wall, H. Snowden Ward, Thomas Bedding, F. P. Cembrano, A. Cowan, W. F. Slater, J. S. Teape, L. E. Morgan, — Turnbull, Child Bayley, G. H. James, W. Fenton Jones and C. H. Oakden (Hon. Secs.), — Jacobs, — Wilkes, H. E. Farmer, F. W. Munro, J. Birtles, and many others.

Mr. Oakden (Hon. Sec.) reported progress, detailing the difficulties the Committee had experienced in the selection of suitable premises, and stating that finally it had been decided to take rooms at Coleman's Hotel. Two rooms and a dark room would be permanently at the disposal of members there, and a large meeting room for meeting nights as might be required. The terms were moderate, and there was an advantage in being able to obtain refreshments and service without difficulty. For country members staying in the hotel there would be a reduced tariff. The report was formally adopted.

The meeting then passed to the consideration of the rules, which, after much discussion, were adopted in the following form :—

Rules of the Central Photographic Club.

1. The title of the Club shall be the Central Photographic Club.

2. The object of the Club is to provide a central meeting-place for those interested in photography where they may enjoy social and technical advantages.

3. All gentlemen interested in photography shall be eligible for membership.

4. The annual subscription for town members shall be £1 1s., and for country members 10s. 6d. For life membership a payment of £10 10s. shall be required from town members, and £5 5s. from country members. The first 300 members will be admitted without entrance fee. Those joining after that number has been reached shall pay an entrance fee of £1 1s. for town members, and 10s. 6d. for country. Gentlemen residing within a radius

of twenty miles of Charing Cross shall be deemed town members.

5. The management of the Club shall be vested in a committee of twelve town members and six country members, four to form a quorum exclusive of officers, to be elected by the members in general meeting annually. The Committee shall have power to fill up vacancies during the current year, and also to make bye-laws as may be found necessary, such bye-laws to be binding on the members after being posted in the Club-rooms.

6. The property of the Club shall be vested in two Trustees.

7. The President, Trustees, Hon. Treasurer, Hon. Secretaries, and an Hon. Librarian shall be elected by the members annually in general meeting, and shall be *ex-officio* members of the Committee.

8. All officers and Committee shall be nominated in writing at the ordinary meeting of the Club fourteen days previous to the annual meeting. The election to be by ballot at the annual meeting, verbally or in writing.

9. Candidates for membership must be proposed and seconded by two members of the Club. The name and address of the candidate, and the names of the proposer and seconder, must be sent to the Hon. Secretaries at or before the stated meeting previous to the one at which it is proposed to submit such candidates for election. Such name shall be read by one of the Secretaries to the meeting, and posted on board till the next meeting.

10. The election of members shall be by ballot at any stated meeting of the Club, and a vote of four-fifths of the members present and voting shall be necessary to elect a new member.

11. Every candidate on his election shall be notified in writing with a request for payment of his subscription and entrance fee.

12. No member shall be entitled to use the Club until his subscription for the current year has been paid.

13. The annual subscription shall be payable in advance on the first day of October in each year.

14. Members joining the Club before December 31st shall pay the full subscription. After the end of December and before March 31st the payment shall be two-thirds; after the end of March and before June 31st, one-third; the subscription of any member elected after August 31st shall be considered payment for the following year.

15. Any person who shall by any means cease to be a member of the Club shall, nevertheless, remain liable for and shall pay to the Club all moneys which at the time may be due by him to the Club. Any person ceasing to be a member from any cause shall forfeit all interest and rights in the Club.

16. Any member making himself obnoxious to the members of the Club shall be reported to the Committee, who shall investigate, and, if necessary, call a special meeting of the Club to discuss the matter; then, if the majority so decide, the offending member shall be expelled the Club, and lose all interest and benefit in it, such decision to be taken by ballot.

17. An annual general meeting of the members shall be held in the first week in October to receive the report of the Committee, to pass the accounts, having been audited by two members, not being members of the Committee, chosen at the previous meeting of the Club, to appoint officers for the ensuing twelve months, and to elect members of the Committee to supply the places of those retiring. The newly elected officers and members of the Committee shall come into office at the conclusion of such meeting.

18. Ordinary meetings of the members shall be held weekly.

19. The Committee may, whenever they think fit, and they shall on a requisition made in writing by ten members, convene an extraordinary general meeting. Any such requisition shall specify the object of the meeting required, and shall be signed by the members making the same, and shall be delivered to the Secretaries.

20. The Chairman shall have a casting vote in addition to the vote to which he may be entitled as a member.

21. No alteration of, or addition to, these rules shall be made except at the annual meeting, or at a meeting specially convened for that purpose. Notice of such intended alteration or addition shall be posted on the notice-board not less than fourteen days previously.

The Chairman next read the following address:—

"At this, the opening meeting of the Central Photographic Club, I wish it unbounded success, and may it have a big future before it. If the success prove equal to the need for such an institution, it cannot fail to be successful beyond our anticipation. After much trouble and anxiety in looking out for suitable accommodation for us, the executive have done well in securing these premises, where we will find ourselves free from so many conditions and restrictions that clogged up the freedom of arrangements in all previous negotiations for a suitable place.

"Here we have comfortable rooms, refreshments at hand always, lodgings if desired by our country friends, and in a very central position—all these combined should prove no mean factor in inducing all the brotherhood of the Black Art to gather round and claim membership. The fee is so small that it must come easily within reach of all, and not to be considered if the possible advantages are put against it.

"I have said elsewhere that, in the interests of the provincial photographer, such an institution is of incalculable benefit, because it provides for him a place where he can at all times find kindred spirits and special interests there focussed, so to speak, and saving no end of trouble in going in search of friends and information; and as a centre for informal meetings it should be of great value.

"I place a great value on informal meetings, where a few friends, over a pipe, talk out the many experiments (successes and failures) that one and all have experienced in their professional career. This is an education of itself, and that of no mean order. As a place for formal meetings of all professional kinds this Club should hold a very prominent place, and there is no reason why many of the London societies should not make it their headquarters, and by this means draw the bonds of brotherhood closer.

"Many other points of mutual interest will suggest themselves to you as we proceed on our way; and, wishing the enterprise all the good that can be wished, I launch our bark upon the photographic stream.

"And, in closing, I would propose a hearty vote of thanks to the executive for all the labours that they have undergone — labours that have so successfully terminated."

Mr. Mason having been cordially thanked for his address, the election of officers was proceeded with, and resulted as follows :—

President: George Mason.—Trustees: Thomas Fall and George Mason.—Hon. Treasurer: John Howson.—Committee: T. Sebastian Davis, D. G. Lindsay Johnson, Alexander Cowan, Birt Acres, Robert Beckett, A. Horsley Hinton, F. W. Hindley, J. S. Teape, F. P. Cembrano, jun., Andrew Pringle, H. Van der Weyde, T. E. Freshwater, R. Keene (Derby), Lyddell Sawyer (Newcastle), W. M. Warneuke (Glasgow), J. Stuart (Glasgow), Paul Lange (Liverpool).—Hon. Secretaries: W. Fenton-Jones and C. H. Oakden. The election of Librarian was left to the Committee.

The meeting night was fixed for Friday in each week. The Club premises will be opened on Monday, October 2. A vote of thanks to the Chairman concluded the proceedings.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

16,579. Bertram John Young, 61, Ashland Road, Nether Edge, Sheffield. "Improvements in Magazine Cameras for Photographic Purposes."—*September 4th*, 1893.

16,826. Arthur Samuel Newman and Julius Guardia, 71, Farringdon Road, London, "Improvements in Cameras for Copying, Reducing, &c."—*September 7th*, 1893.

Specification Published.

18,838. *October 20th*, 1892.—"Optical Lanterns." W. Rice, 86, Fleet Street, London.

Consists in constructing apparatus for more effectively holding the slide carrier in an optical or magic lantern, the apparatus being constructed to be adjustable for various thicknesses of carriers, but will clamp such carriers with equal rigidity.

A ring is employed, made preferably of metal, and attached to a collar, which screws into or over the extension tube of the lens. This ring attached to the screw is turned by means of a milled edge, and can be made to press the slide carrier firmly against the condenser cell, so as to prevent any slipping during the operation of moving the inner frame of the carrier.

When it is required to place the slide carrier in position, the ring is screwed back into or upon the lens tube, till there is sufficient space to insert the carrier. The screw is then turned in the opposite direction, reducing the aperture till the carrier is firmly pressed against the condenser cell.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan & Co.

CONGRESS OF THE P.S.G.B. AND AFFILIATED SOCIETIES.

Programme.

Tuesday, October 10th, at 8 p.m., at the Gallery, 5a, Pall Mall East.

The presentation of the medals awarded at the Exhibition.

The President's annual address.

A paper "On the Action of Light on Bacteria and Fungi," by Professor H. Marshall Ward, M.A., F.R.S.

Wednesday, October 11th, at 3 p.m., at the Theatre of the Society of Arts, John Street, Adelphi.

The following papers will be read :—

"The Present Position of Photo-micrography," by Andrew Pringle, F.R.M.S.

"On a Process of Photo-mechanical Printing in Natural Colours," by W. Weissenberger (of St. Petersburg).

A paper by Mr. Emil von Hoegh (of Berlin).

"Photography in Compartments," by Hector Maclean, F.G.S.

Wednesday, October 11th, at 8 p.m., at the Theatre of the Society of Arts, John Street, Adelphi.

The following papers will be read :—

"On Exposure and Chemical Action," by Captain W. de W. Abney, C.B., F.R.S.

"The Recent Solar Eclipse," by Captain Hills, R.E.

A paper by Dr. A. Miethe.

Thursday, October 12th, at 3 p.m., at the Theatre of the Society of Arts, John Street, Adelphi.

A demonstration of collotype printing will be given by Messrs. T. Bolas and W. E. Debenham.

The following papers will be read :—

"The Measure and Numeration of the Stops of Photographic Lenses," by Dr. P. Rudolph.

A paper by Mr. Arthur W. Clayden, M.A.

Thursday, October 12th, at 8 p.m., at the Gallery, 5a, Pall Mall East.

A special lantern display.

CORRESPONDENCE.

HACKNEY PHOTOGRAPHIC SOCIETY.

Sir,—Will you please allow me to correct a slightly wrong impression which appears to exist in the reading of our rules for the forthcoming Exhibition at Morley Hall? Rule F states "professional class." This does not exclude amateurs, the words being put in to infer that there would be no restriction as to who does the work—*i.e.*, in a joint manner as in professional firms. In other classes the work has to be that of one person, but this one is more open in the matter. W. Fenton Jones, Hon. Sec.

Mr. T. Sydney Cooper, R.A., the well known and prolific animal painter, will complete his ninetieth year on the 26th inst. Mr. Cooper resides at Canterbury, and has lately been actively engaged in superintending the hop-picking operations.

LIBRARY

PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

Tuesday, September 26th.—Technical meeting at the Gallery, 5a, Pall Mall East. Explanation of the apparatus in the Exhibition by the exhibitors.

London and Provincial Photographic Association.

September 14th.—Mr. Weir Brown in the Chair.

It was decided that the usual weekly meeting would not be held on October 12th, that being a night on which most of the members would probably prefer to attend at the Congress of the Photographic Society of Great Britain and Affiliated Societies.

Mr. T. **Bolas** showed some examples of photographic composite colour pictures produced at the Russian State Paper Office. A collotype print in each of three colours was shown, as well as the picture resulting from all three in register. The selection of the amount to be given to each colour was said to be done entirely by the use of screens, without any special blocking-out by hand. The resulting pictures were considered to be remarkably fine examples of colour printing, and to possess a play and gradation of colour beyond what was obtained by several times as many stones in chromolithography. The subjects represented water-colour drawings, both of figure and out-door subjects. The order in which the several colour impressions were made on the paper was very important. Yellow was first used, then the red, and finally the blue. If the order were changed, the result would be very different.

Mr. W. E. **Debenham** said that, for prints produced in this way, it was essential that the colours superimposed should be transparent. In this case probably the yellow was of an opaque character, and, therefore, was printed first. If the blue or red had been opaque, as vermilion or cobalt, and the yellow had been transparent, the order of printing would have to be changed.

Mr. **Bolas** called attention to the fact that each colour print seemed a complete though different representation of the subject. This suggested that all parts of the original gave out an amount of all colours.

A question from the box as to the best means of removing silver stains from an unvarnished gelatine negative was answered by a recommendation to use cyanide of potassium.

To another question, as to the size of prism necessary to be used when copying for a reversed negative,

Mr. A. **Haddon** replied that the prism must be large enough to take the whole cone of rays proceeding from the object.

Mr. **Sinclair** inquired whether anyone had found any injurious effect on the hands from the use of metol in the developer. He had found it to cause a puffiness of the skin, accompanied by an eruption and pain. He knew of two other cases of a similar character. He found metol very successful as a developer, and had endeavoured to safeguard the fingers by rubbing with vaseline, but without success.

Mr. T. E. **Freshwater** had known one worker who had used metol largely without noticing any ill effect from it.

List of Meetings.

September 28th.—Demonstration on "The Preparation of Plaques for Ceramic Enamels."

September 30th.—Outing, "Bull and Bush," Hampstead. Tea at 6 o'clock.

October 5th.—Demonstration by Mr. Birt Acres.

October 12th.—No meeting at the Rooms. Affiliated Societies' meeting at 5a, Pall Mall.

October 19th.—Lantern night. Mr. Hepworth on "A Recent Trip to the Lake District."

October 26th.—"Aluminium Flash Light," by Mr. T. Bolas.

November 2nd.—Paget Lantern Plates Demonstration, by Mr. T. Herbert Fry.

The Photographers' Benevolent Association.

Committee Meeting, held on Friday, September 15th, at the Rooms of the Photographic Society of Great Britain.—Mr. Mackie in the Chair.

The applications for assistance were as follows :—

First.—An assistant, who stated that he had come from the North of England on an engagement with a London photographer, and had been dismissed after working 2½ days without notice or salary in lieu of notice, asked for legal assistance in obtaining the money due, and a small loan to enable him to live until he could obtain the arrears or find a new situation. An immediate loan of £1 was granted, and the Secretary was instructed to instruct solicitor to proceed for recovery.

Second.—Application for loan of £20 from an assistant, who stated that his wife had been seriously ill for ten months, and was now quite unlikely to recover. The doctor's and other expenses had taken the whole of his savings, and he was now threatened with proceedings for rent and rates. The loan was granted.

Third.—Application for a grant of £1 to enable the purchase of a larger camera than the one at present possessed by applicant. He stated that he had been thirteen years in one situation—not as a photographer—and that he earned additional money by practising photography. In his situation he was receiving a salary of 18s. per week. The loan was refused, as the committee considered it was not a fit case for assistance.

Fourth.—Applicant wrote from a workhouse infirmary. He stated that he was to be discharged cured in a day or two, after being in the institution three months, and applied for a grant of 8s. for railway fare to a town where he had promise of wet plate work, and a few shillings for subsistence until first wage should be due. A grant of 15s. was made.

Fifth.—Application for loan of £5 to enable applicant to pay small debts and reach situation. Referred back to Secretary for further particulars and inquiries.

Sixth.—Application for assistance—sum not stated—by an operator, who stated that he was penniless, owing to illness, which had prevented him working for some months. Referred back for further inquiries to be made.

Seventh.—Application for loan of £20 to assist in building a studio. Applicant has been many years in business, and stated the reasons which had caused him to fail. He had a very small amount of capital in hand, and required £20 further to enable him to start again. Referred back for further inquiries.

The **Secretary** reported on the position of several persons who had been assisted during the spring, and said that two of them who appeared to be in position to repay, at any rate, a portion of the loans granted to them had failed to do so. The secretary was instructed to write these people further, and to take advice as to the possibility of instituting

County Court proceedings in one case, and criminal proceedings in another. The Secretary reported that several of the applicants who had been assisted last winter and during the spring were progressing favourably. Arrangements were made for the Lantern Evening which had been granted to the Benevolent by the Photographic Society of Great Britain.

Messrs. E. Floate, Frank Hallen Smith, F. Nunn, J. H. Napier, W. T. M. Davidson, A. D. Fisher. Messrs. McIsaac and Riddle, and Misses Hardy and L. Hicks were elected subscribers. Mr. George Mason was elected an honorary life governor.

Donations of £5 5s. from George Mason, Esq., £5 from the Convention, per Messrs. W. D. Welford and Hedley M. Smith, were acknowledged with thanks.

Hackney Photographic Society.

Ordinary Meeting, Tuesday, September 14th.—Mr. J. O. Grant in the Chair.

Messrs. Dean, Fort, Moore, Roberts, and Roofe, showed work.

From the question box :—"In taking photo of factory with men at work, what kind of plate should be used?" Summarising the replies, backed and very rapid plate advised. Mr. Beckett had tried Powell's backing, and would expect it to answer for all ordinary cases. Mr. Sodeau said when caramel is slow in drying, he would advise applying a piece of slightly greased paper to the back of the plate before applying the backing.

The Hon. Secretary showed one of Dyson's vignette backgrounds. Considering the price, it was thought wonderfully cheap.

Mr. Barker showed a platinotype print much marked. The paper appeared at fault.

Mr. Fort showed a negative having a mottled sky. It was thought irregular drying was the cause.

Mr. F. W. Dodd showed a negative having marks on. The Hon. Secretary thought negative had been rubbed whilst wet.

Mr. Gosling showed negative which by retouching had been cured of line-markings.

Mr. Dean showed a negative with silver stains. Methylated spirits was advised being used.

Mr. Hudson handed up some negatives on which he failed to secure proper density. Mr. Beckett said they were much under-exposed.

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An official letter has been sent by the Postmaster-General to Mr. Weir, M.P., to the effect that he has now fully considered the question of permitting envelopes, decorated with designs and advertisements, to pass through the post. Anything which creates difficulty and delay in sorting is sure to retard correspondence in transit, and to obviate this inconvenience the Postmaster-General has thought it best, while not exercising in full the powers entrusted to him, to give instructions that letters in envelopes ornamented in the manner described shall be permitted to pass through the post, provided the right-hand half of the envelope is left quite free of printing and ornament, so that there may be a clear space for the postage stamp and the address.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

G. J. P.—We do not quite understand your question. Any good ink should be indelible, or, at any rate, should resist ordinary agents. Kindly write again and explain the purpose for which the ink is required.

Artist.—Cardboard of various kinds, embossed with grain or lines for process drawings, can be obtained of Cornellissen, of Great Queen Street, W.C.

A. Z.—The pictures referred to were taken with a Ross' Universal lens.

Geologist.—We should advise you to obtain permission of the Geological Society to look through their collection of photographs, in which you will doubtless find many examples of "crumpled" strata. A good specimen is to be seen in the cliffs near Weymouth, and a very fine one at Bredda Head, in the Isle of Man.

Slceper.—The softening of the gelatine is inevitable if the washing is carried on for such a long period as you describe. especially in the hot weather of the past month. Twenty minutes under a rose tap is quite sufficient; and if the gelatine is soft after that, a little alum solution will cure the evil.

E. (Luton).—Some of the oil colours sold in tubes are not fitted for glass painting, on account of the large quantity of oil or other medium which they contain. This can be eliminated by spreading the colour upon blocks of dry plaster, and afterwards washing it in turpentine.

Sepia.—Your bath is too strong. Use three ounces hypo to twenty ounces of water.

T. M.—Acidify the solution with two drops of sulphuric acid.

Sigma.—A pyro-developed negative will gain in density if dried in sunlight. This fact will explain the marks on your films. The portions dried—as you explain, in darkness—are lighter than those parts subsequently dried in sunlight.

M. M. C.—Bamboo rods with metal sockets represent the strongest and lightest arrangement which you can adopt. Solid iron rods are quite out of the question.

B. (Colchester).—A waterproof putty is made by working up ordinary putty with linseed oil and red lead. This will make a reliable stopping for your glass-bottomed dishes, and will last for ever.

Beginner.—Fluid measure is indicated in all the cases referred to. A Winchester quart is eighty ounces, or half a gallon.

J. N.—Tripoli powder, methylated spirit, and a few drops of ammonia constitute a capital glass cleaning mixture. Shake well before use, and polish with chamois leather.

M.—We hope to do so next month.

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The Seventh Annual Exhibition under agreement between the Society of Amateur Photographers of New York, the Photographic Society of Philadelphia, and the Boston Camera Club, open to all photographers, will be held by the Society of Amateur Photographers of New York, at the Galleries of the American Fine Arts Society, 57th Street, near Broadway, New York, from the 16th to the 28th of April, 1894. Entry forms can be had by applying to the Committee. Exhibition Committee: T. J. Burton, R. A. B. Dayton, R. L. Bracklow. Address: 113, West 38th Street, New York.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1830. SEPTEMBER 29, 1893.

NOTES.

So many totally opposite statements have been published with regard to M. Lippmann's colour experiments that one hardly knows whether a great discovery has been made, or whether the adaptation of a well-known optical principle has been magnified into one. Many months ago a so-called photograph in colour by M. Lippmann's method was handed round at the Camera Club, and by turning and twisting the little piece of glass about a faint image of the spectrum became perceptible. But this picture was of such a dingy kind that the common verdict was, that if this was all that the much-talked-of process could do, it was of little account.

SINCE this time M. Lippmann's colour process has been so far modified by M. Lumiere, that it is now possible to project, by means of the electric arc-light, a brilliantly coloured picture upon a screen. We are told by an experienced scientific photographer who has seen these pictures that the result obtained is of the most marvellous character. Indeed he goes so far as to say that this system of obtaining coloured pictures is the greatest advance that photography has seen for many years, and that it may be placed on the same level as the introduction of the telephone or the phonograph. As we intimated last week, some of M. Lippmann's photographs will be on view at the forthcoming Congress of the P.S.G.B. and Affiliated Societies.

IN a paper read recently before Section B of the American Association for the Advancement of Science, the meetings of which were held at the beautiful university town of Madison, Wisconsin, Vice-President Nicholls referred to the astounding resources of photography in depicting phenomena of infinitesimal time, illustrating his remarks with a number of lantern-pictures. These showed the action of the alternating electric currents with light and dark intervals clearly depicted, the flight of a bullet with its attendant sound-waves (as shown some time since over here by Professor Boys), and many other curiosities of rapid photography. Some of the exposures could only have lasted for a few millionths of a second, but Prof. Nicholls does not believe that the limit of these investigations has yet been reached.

OUR forefathers had a rough-and-ready method of dealing with bothersome persons which would not be tolerated now; and the pillory, the stocks, and the ducking-stool are now only remembered in literature, or by specimens of these corrective appliances which still remain in out-of-the-way places.

THE Town-hall at Fordwich is the proud possessor of a ducking-stool, which was invented for the punishment of scolding wives; and it occurred to some genius the other day that a demonstration of its use might be given, perhaps as a salutary caution to wives in general. The suggestion was no sooner made than acted upon; but as a scold was not at the moment found available, a boy was persuaded to take her place on the stool and was duly ducked. Among the party assembled were some amateur photographers, who did not fail to take advantage of the impressive scene. The experiment, however, nearly ended in a catastrophe, for by some accident in working the crane to which the stool was attached the boy was kept under water far longer than was intended.

PHOTOGRAPHY is almost invariably a trap for the novelist who makes use of it as part of the machinery of his plot. In a recently published sensational novel we have the hero's face showing in death "no signs of pain," in point of fact "placid, considering the violence of his end"; a little further on we are informed that in a photograph taken at the time "the face portrayed

—told only too plainly—that the dead had suffered the torture of a painful, nay, of a violent death." One reviewer, pointing out this discrepancy, slily suggests that possibly this is a witty hit at photographers who may have been unkind to the author.

In Mr. W. L. Thomas's recent paper on Illustrated Journalism, read before the Institute of Journalists, he gave a quotation showing that it was once the custom for journals to publish a contents bill in rhyme. Said he: "I don't see why we should not adopt this style at the present day; it would certainly be very taking at the railway station. We might have a contents bill something in this fashion, you know:—

"The Queen leaves Windsor by Special Train,
Forecast to-day denotes much Rain:
Gladstone burns his Home Rule Bill,
Healy and Sexton both are ill:
Princess and Baby are doing well,
Another Murder in Whitecha*pel*:
Nansen and Peary at the Pole have met,
Harcourt wipes out the National Debt:
A Prince is crowned at Timbuctoo,
Death of a Veteran of Waterloo:
Great Divorce Case—the Hundredth Day,
Strike of Journalists for Increased Pay."

This sally was naturally received with much hilarity by the large audience present. Mr. Thomas might have added that the contents bill of the future will probably be adorned with photographs. Some papers we notice do give on their bills illustrations of a kind, mostly dealing with crime. One we noticed only last week showed a photographer with an impossible camera photographing the wounds of the Ardlamont victim. The picture would have been ghastly if well drawn; as it was, it was far more provocative of mirth than most of the illustrations in the comic papers.

A curious story is afloat as to the destruction of the picture known as "Love among the Ruins," painted by Mr. Burne Jones in 1873. It was entrusted to a firm of art publishers for the purpose of being photographed, and it is said the photographer, mistaking it for an oil painting, poured upon it some fluid intended to make it shine. Unfortunately the picture was a water-colour, and of course was ruined. One art writer, in commenting on the story, says: "It is difficult to believe that anyone accustomed to handling works of art could have made such a blunder; and it is still more difficult to understand why any photographer should try to impart to the surface of the picture that shine which it is his habit to denounce as a drawback and interference."

With the first part of this comment one of course agrees, but the last part shows that the writer knows very little about copying oil paintings. The plan of lightly rubbing the surface of an oil painting with a damp cloth is frequently adopted when the colours are dull, either through age or through the pigments employed. It is more a brightness than a shine which is produced, and any tendency to reflection is easily got over by placing the picture at a suitable angle. That any photographer could mistake a water-colour drawing for an oil painting we must, however, decline to believe without further evidence.

From inquiries made by one interested in the subject, the seaside outdoor photographer has had an exceedingly good season, thanks to the exceptional weather. The ferrotype man appears to be able to hold his own against the competition of the amateur and the twopenny automatic—or semi-automatic, to speak correctly—picture. The authorities at some seaside resorts take quite a paternal interest in the wet-plate professional, and, while they subject him to certain regulations, they virtually give him a monopoly of the beach by decreeing that no man shall dare to pitch his camera on the seashore unless he be a householder and pays rates and taxes. This, at least, is the information which reaches us, but we are unable to specify the particular places where such regulations are in force.

The seaside photographer has to exercise infinite tact to secure his sitters. He doesn't waste much time over the day trippers, for they are not often his customers. The weekly and fortnightly visitors are his best patrons, and especially the children. The donkeys also assist him. There would seem to be some association of ideas—we mean nothing derogatory to the photographer—between riding a donkey and having one's photograph taken. Possibly it is that both being rather unusual events in our lives we couple them together. Be this as it may, the photographer who is at hand when the donkey ride is on often secures a commission. It is otherwise when a party have been out for a sail, especially if the sea be a little choppy. But no photographer of experience would think of suggesting a portrait under such depressing circumstances.

The information which the police have sent round to all the banks, that a gang of expert forgers have arrived in London from America, and intend to commence depredations by altering the figures of any cheques they may be able to get hold of, has led to a revival of the suggestion that a secret photographic apparatus should be set up at every cashier's desk, so as to secure a portrait of everyone who presents a cheque. We have read more than once of the Paris bank which has an arrangement of this kind, but we have never seen a name given to this particular institution. We are afraid the story is too good to be true.

CARBON PRINTING.

BY W. A. COOPER, CHICAGO, ILL.

It is pretty well admitted that the first print made in the camera was by Niépce, in 1816, twenty years before daguerreotypes were made, and nine years before these great inventors met. In 1825, then, we have the record of the first "World's Congress of Photographers." What grand results have been accomplished as the outcome of that meeting! Who can tell but some of the prophecies now made, thoughts expressed at this Congress, may have as literal a fulfilment as the prophecies of our great forerunners in our beloved art?

A little camera, 6 by 6, fitted with a telescope tube containing a lens pointed at a pigeon-house, a sheet of white paper drawn through the salts of silver and exposed to broad sunlight, and we have the first print ever made or (more properly speaking) the first negative, as the lights and shadows were inverted and the image reversed. From this little experiment in the garden of Niépce must we date the birth of one of the greatest discoveries of this century. Without following the child through the stages of improvements in all the various printing processes up to the present time, I will plunge at once into the subject I am to talk to you about to-day—carbon printing in relation to reproductive art and as a necessity in the studio of every photographer.

Time was when permanency was not questioned. It was not thought of in 1816; the main thing then was to "get the image."

"How to fix it" was the next great question, and with all the varied processes before us, with the perfection in the making of negatives, the great strides to the photographing of different colours, and getting their values, the vital question should be, what process shall we use that will give the best results, one that can be handed to future generations with some degree of faith that they will endure? That the carbon is permanent is beyond question. That it is adapted to the reproductions of works of art, I only have to point you to thousands of samples in this building, some 18,000 having been recently purchased by the Art Institute from Braun & Co., of Dornach, and their line not half exhausted; and all through the land our schools and colleges are filled with these beautiful samples.

It is only the few who can possess a Rubens, a Raphael-Sanzio, a Titian, or the works of the great painters of our own day. But Braun of France, and the Autotype Company of England, have made it possible for us to have copies of these masters as permanent as a veritable Rubens, and the demand is increasing.

In 1880 reproductions by any of these processes were practically unknown throughout the great West. It was the day of cheap chromos and paintings by the yard. These made way for the beautiful "autotype," the first photo-mechanical process to reproduce works of art in this country commercially. These grew rapidly in favour, because, being actual photographs in printing-ink copied from modern paintings and engravings and very cheap, so the chromos, and the daubs called oil paintings, were driven out, and the homes of the poor and our great middle-classes were filled with beautiful copies of the "Angelus," "Christ in the Temple," and hundreds of other great works.

Then began to appear autotypes of the last Salon, and of the masterpieces in the Louvre, the Luxembourg, the Vatican, and the public and private galleries of Italy and England.

To show the achievement of photography in this particular channel, and especially to prove what the carbon process has done, led me to call your attention to a few pictures in this hall—these beautiful carbon prints; and, as we see them to-day, so may our children's children gaze on them, for we know them to be as permanent as the diamond. Here we have the "Gleaners," by Millet; there a Corot; here a Rosa-Bonheur, now in the Luxembourg; there a Franz Hals and a Rembrandt; a "Beatrice de Cenci," by Guido Reni; a Hans Memling, a Michael Angelo; the beautiful "St. Cecilia," by Carlo Dolci; the "Marriage of St. Catherine," by Correggio; a Murillo, a Hans Holbein, and last, the "Children of Charles I.," afterwards Charles II. and his sisters, by Van Dyck. These have all been photographed direct from the originals, so you see we stand very close to these grand old masters. It lacks only the colour.

Outside of a chosen few who had means and could travel, who knew or heard of the great French painters, Bouguereau, Gervaise, or Meissonnier, or a hundred others, until Goupil with his charming photogravures, or Braun with beautiful carbons, made their works known the world over? They sprung into notoriety at once, and to-day hundreds of originals are owned in this country.

What Goupil and Braun have done for the French painters may we not do for ours? Art has grown in America very rapidly. It is only necessary to visit the United States section in the Art Gallery at Jackson's Park to prove this. Who knows but that the next great school of art will be an American school? I could name a dozen artists in this country whose works would find a ready sale abroad. Photographers of America, you must be up and doing. The time is not far distant when I hope to see carbon prints of our own artists on the market. I mean prints worthy of the subject, like those I have called your attention to in this hall. To-day in America I know of one or two establishments working this process almost exclusively for portrait work, but I hope soon to see an establishment started in Chicago ostensibly for the reproduction of works of art.

Now as to general studio and view work. In this age of cheap pictures and cheap printing processes, something should be done to bring about better prices, and give permanent results. This is only following out the natural tendency of things. We have gone rapidly ahead in all other branches; why stop where the negative is made and let the cheap and poorly taught help rush the prints through? One only has to compare carbon portraits in any tone with the best prints of any of the processes used to see that the advantage lies with the carbon. It has greater depth of colour, is less sharp in outline, consequently more artistic. Its natural condition is matt surface, which is fast becoming popular, showing the growth of taste. It will bring better prices, and just now, with prices cut down beyond all reason, the beautiful but evanescent "aristo" advertised at two dols. per dozen, and sixteen prints and a life-size bromide for three dols., surely the carbon should be hailed as a boon to the photographer and a blessing to the country. Take the copying and enlarging departments alone—what a field for this beautiful and permanent process! Look at the millions of portraits that are copied every year; how many of them are fit to hang in our homes, and how long will they last? Surely the pictures of our loved ones should be permanent. What value would these reproductions of the old features possess if in a few short years they would fade?

I make this a strong plea. I believe the time has come to wake up to the folly of using processes for printing our pictures, especially the larger ones, that we know will fade.

The reason that photographers have not long ere this adopted the carbon process are many. In the first place, we did not begin at the bottom and study the philosophy of gelatine printing. In 1876 the fascinating double transfer process of Johnson was taught and sold in this country, and at first it seemed simple and easy, but only the few succeeded, and those only after going into it thoroughly. Had the old-fashioned, but reliable single transfer process of Swan's been taken up and the photographers satisfied with matt finish, the history of carbon printing in this country would have been different. Unfortunately, the rage has been for highly-burnished or glacé-finished pictures, and the Johnson double transfer caught them. But I am happy to say to you things have changed, and the great growth of photography among amateurs of the better class has helped to bring it about. Now, the desire is for matt surface in all gelatine printing papers, and to-day in Chicago the pictures that command the highest price are single transfer matt surface prints developed on celluloid sheets, and very beautiful they are.

Now, a few words as to the working of the process. I am using, and I advise all beginners to use, a simple transfer. It is as simple as making a negative on a dry plate and less complicated than the toning, fixing, and washing of one albumen or an aristo print. I wish I could give you an ocular demonstration of the process, that you might see how simple the exposing and developing is, but must content myself by describing as briefly as possible how to make a carbon print. Provide yourself with one roll of tissue, one roll of single transfer paper, one squeegee, one yard rubber cloth, one pound of bichromate of potash, one photometer, hot and cold water, and the outfit is complete. Sensitise your tissue in a 3 per cent. solution of bichromate of potash, by immersion for three minutes, or until it lies perfectly flat face down, and the edges begin to curl up; place it face down on a piece of glass and squeegee out excess of solution, then place to dry face up, on blotting paper like this ⌒ in a dark, dry place. It should dry in about four hours; if it takes longer, your room is damp. When dry cut in sizes and place in tin box and it is ready for use within a day or two at most.

Prove your negative with albumen paper, putting a slip on your photometer and exposing both together; print as you would for a proof—no deeper. Note the number printed on your photometer, and that, as a rule, is the depth to print your carbon. Very simple, is it not? Use a mask on your negative to protect edges of tissue from seeing the light, that they may remain insoluble, and adhere closely to transfer paper. Cut a piece of the transfer paper larger than the tissue, and immerse it with exposed print in cold water. When tissue lies perfectly flat, bring face of print and coated surface of transfer paper together under water. Now lift both out together, placing on glass, and with rubber cloth and squeegee squeeze out all air bubbles and water; leave under weight a few minutes and it is ready for developing. Place the print in warm water of about 75° Fahr., and in a few minutes the gelatine will soften, and the pigment will ooze out; then the paper that had formed the temporary support may be separated by rolling it away, or back, leaving the print on transfer paper. The temperature of water may now be increased up to 90°, 100°, or 120° Fahr., according to depth of print or age of tissue, fresh tissue developing quickly at 90° or 100° Fahr., while old sensitised tissue may require 125°, or even more, but as a rule, less will do. When developed, plunge in cold water for a minute to stop development, then into a weak solution of alum to take out any bichromate that may remain, and your picture is finished.

This, then, in a nutshell, is carbon printing. One must understand the philosophy of the action of bichromate on the tissue and the action of light on the bichromate, and the whole thing is simplicity itself.

Now in regard to the negative I would like to say a few words. It is absolutely necessary that a strong, vigorous negative be used, fully timed and carried well along to developing, stronger than for albumen printing. As a reversed negative must be used for single transfer, I would recommend for portrait work the use of a prism on your lens; this will give you a reversed negative on glass, and may be retouched as in the ordinary way; but for outdoor work and copies of paintings I use orthochromatic stripping plates, without, of course, the use of a prism.

In copying paintings I use a screen at back of lens, light yellow or orange, according to the picture. In the case of old dark paintings, I place them in strong sunlight in a direction that stops all reflection and gives the handling and the technique of the artist. Use a medium stop and give plenty of time—from four to ten minutes.

I shall not attempt to speak of other branches of carbon printing, such as double transfer, or transferring on uneven surfaces, or making transparencies, because after getting posted in the single transfer all these will follow. If the amateurs of this country could only realise the beauty and simplicity of this process, it would settle the question, because the demand would drive the professional into it for self-protection.

Into your hands, then, I leave it for the present, and may the seed fall on good ground and end like the story of the flower told so sweetly by Tennyson :—

> "Read my little fable,
> He that runs may read ;
> Most have got the flower now,
> For all have got the seed."

—*Read at the World's Congress of Photographers.*

A SUGGESTED IMPROVEMENT IN THE CORRECTION OF LENSES FOR PHOTOMICROGRAPHY, ETC.

BY HENRY G. PIFFARD, A.M., M.D.

(*Concluded from page 590.*)

LET us assume that a photograph be made with an amplification of 3,000 diameters, with N. A. the greatest and λ the least possible. This photograph may then be further enlarged to 30,000 or 300,000, but the enlarged pictures will not show any finer or more intimate structure than was delineated on the original smaller picture.[*]

Although orthochromatic or isochromatic plates have been regular articles of commerce for several years, they are used by practical photographers to a limited extent only. This is due to the fact that, despite the acknowledged superiority of the plates themselves, the negatives made on them with the lenses ordinarily at command have not yielded as satisfactory results in some respects as were obtained on the older blue-sensitive plates. The reason of this is almost self-evident. All ordinary photographic lenses at present constructed are under-corrected, and intentionally so, in order to make the visual image agree with that formed by the shorter wave-lengths, to which alone the old-style plates are sensitive.

If, for any reason, the photographer desires to use orthochromatic plates, either for copying, for portraiture, or in general landscape work, the only rational procedure is to use lenses that are specially corrected for them. To carry out this idea the Gundlach Optical Co. kindly constructed an 8 by 10 inch "rapid rectigraph" lens of 13-inch equivalent focus, corrected for the D instead of the G line of the spectrum. The performance of the lens has fully justified the induction that led to its construction.

When orthochromatic plates first came into general use, the astronomers seized on them with avidity ; but it was not long before they became dissatisfied with the results. At a recent astronomical congress in France, the sentiment of the majority of those present was that more faithful and satisfactory images of the heavenly bodies were obtained on the blue than on the yellow-sensitive plates.

Little of value had been done in photastography until the late Mr. Lewis Rutherford, of New York. produced some photographs of the moon which greatly surpassed any of the sort that had been previously accomplished with the refracting telescope.[*] Rutherford used a telescope with the objective so extremely under-corrected that it was almost useless for visual purposes. This lens, it is almost needless to say, was specially corrected for the shorter wave-lengths, to be used in connection with wet-collodion blue-sensitive plates, the only ones at that time available. Some astronomers employ a telescope corrected for best visual definition and a duplicate specially corrected for photography, and it is the latter that they have usually employed with the orthochromatic plates. The reason, then, that these plates have fallen into disfavour with many of them is due to the fact that they have used the wrong lenses with the right plates.

One of the principal advantages connected with yellow-sensitive plates is their ability to record the details of distant objects in a more satisfactory manner than is possible with the ordinary ones. Some four years ago the writer called attention (*Anthony's Photographic Bulletin*, February 9th, 1889) to the *graphotelic* properties of these plates in connection with landscape photography. If this special attribute of yellow-sensitive plates is of value in connection with distances limited by, perhaps, a score of miles, it certainly seems that it should not be overlooked by those who work their lenses with the anterior conjugate focus many millions of times greater than the posterior.—*Anthony's Photographic Bulletin.*

THERE are innumerable instances in which photography has proved itself the enemy of crime and criminals. Only the other week, again, it intervened in the revolting cruelty case which was brought up from Chelmsford for trial at the Old Bailey. A poor servant girl was so ill-treated by her mistress as to be almost killed, and one of the witnesses against the mistress was a photograph of the girl taken by an amateur just after her escape from slavery. This photograph, on the authority of a police constable who saw the condition of the girl at the time, was a good one, and, together with the other evidence produced, it led to the prisoner being justly sentenced to two years' hard labour.

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[*] Some months ago a friend, who is a sub-chief in one of the principal bacteriological laboratories of this city, remarked to the writer that the height of his ambition was to possess and work with a Zeiss $\frac{1}{18}$-inch apochromatic. I replied that if he fancied Zeiss lenses he had better select a $\frac{1}{12}$-inch, as with it he would be able to do more and better work in the line of research and discovery than with the $\frac{1}{18}$-inch. My reply was evidently received with extreme incredulity. If we refer to Zeiss' catalogue we shall find that the numerical aperture of the $\frac{1}{18}$-inch is given as 1·18, but the $\frac{1}{12}$-inch of the same maker has a N. A. of 1·30. He makes still another $\frac{1}{12}$-inch, N. A. 1·40. Applying these figures to the equation above given, and assuming for white light λ 5,269, we shall find that the $\frac{1}{18}$-inch will resolve or differentiate particles that approach each other as closely as about 114,000 to the inch, while the $\frac{1}{12}$-inch of N. A. 1·30 will resolve particles as close as about 125,000 to the inch, and the $\frac{1}{12}$-inch, N. A. 1·40, will take optical cognisance of lines or particles that approximate each other to within about $\frac{1}{135000}$ of an inch.

[*] I am not unmindful of the magnificent work done by Dr. Henry Draper with his reflecting telescope.

DARK-ROOM ILLUMINATION.

THE question of what kind of a light to use when developing plates is too often dismissed without proper consideration. "Anything red will do" seems to be the prevailing motto, and the dealer's cheapest piece of red glass is accepted, in the firm belief that it will prove an absolute safeguard against fogging in the dark-room.

Now this is very far from being the case. Most red glass admits the passage of some of the blue rays, which are, of course, detrimental to the plate. Out of a large sheet of copper-flashed glass often only a few square inches will be found available.

One of the easiest ways of testing red glass is with the spectroscope. By this means the quantity and kind of rays passed by it can be readily determined with absolute certainty. The average photographer, however, is not possessed of one of these instruments, and, even if he were, it is doubtful if he would know how to use it.

It is, however, a very simple operation to test in other ways the safety of a light, and yet how seldom is it done. One of the best methods we know of, after the spectroscope, is to expose a portion of a plate to the rays of the lamp for a given time, at different distances, and then to develop it with a moderately concentrated developer. Care must be taken not to expose the plate to the rays of the light during development any more than is absolutely necessary, in order to prevent fogging from this cause and wrong conclusions being drawn in consequence.

It is also advisable that the development in each case should bo conducted with the same strength solution for the same length of time and that it is not pushed to such an extent as to produce chemical fog.

In making the tests, a trial of five minutes will be ample, as it is rarely that a plate during the course of development will receive this amount of exposure to the direct rays of the light employed.

Having a portion of the test plate unexposed gives us a check, by means of which we can determine how much of the fog, if any, is due to the developer or plate and how much to the light, in case the precautions concerning development have been neglected. Without this check it would be almost impossible to trace it with certainty to any one cause.

Having settled once for all the question of the safety of the light, with both ordinary and orthochromatic plates, the latter, of course, being more sensitive to the yellow and red rays than the former, the quantity of illumination compatible with safety is the next question. As a general rule, have as much light in your dark-room as possible, as it will save many annoying accidents, besides lessening the strain upon the eyes to a considerable extent. When making the tests previously referred to, therefore, bear this in mind, and have the lamp you are testing and intend to use turned up to its full extent.

It frequently happens that an emergency arises when it becomes necessary to replace a broken glass or chimney under circumstances which will not permit of a test. In cases of this kind it is well to cover the tray while developing with another larger one, or piece of pasteboard cut to a suitable size. Indeed, many workers habitually do this as an additional safeguard against possible mishaps.

The beginner is usually tempted to take his plate out of the developer and examine it under the light much more frequently than is at all necessary. There seems to be a strong temptation to study the detail and density with the negative held close up against the lamp. Now, it should be remembered that the intensity of the light is greater just here than at any other point, and the danger of fogging consequently increased. Moreover, the glass usually slides into frames which are by no means absolutely tight, and a close examination will frequently reveal quite a number of rays of white light coming from these joints in just the place where the plate is likely to be exposed to them.

Refrain, therefore, from holding the plate up to the light any oftener than is absolutely necessary, and, when doing so, hold it a little distance from the lamp.

Perhaps the next question in order is the kind of light to use. Practically, we have three sources to choose from—gas, oil, and electricity.

First in the order of convenience, cleanliness, and general adaptability undoubtedly comes electricity. In the larger cities this may be readily obtained from any of the numerous electric-lighting companies; and no matches, no odour, and the minimum of heat are certainly strong recommendations in its favour. When it is not feasible to run the wires to the dark-room, it will often be possible to use a battery as the source of electricity. Two kinds are available—storage and primary batteries. The first need frequent recharging, while the second do not require renewal so often, but are somewhat more messy to handle. Two or three of the first will usually be sufficient for a five-candle-power lamp, while usually five of the primary cells will be required. There are on the market compact forms of the primary battery with lamp attachment complete, and they answer this purpose very well when new. Their care, however, is something which requires a certain amount of knowledge and experience, and the average amateur had better confine himself to oil or gas, if the alternative is to make his own electricity.

Gas, of course, comes next, and a very convenient way in which to use it is with the paper sodium cartridges, which are slipped over the top of a Bunsen burner and give an intensely yellow, monochromatic light. A dark, amber-tinted chimney usually accompanies the outfit; and the light afforded is both pleasant to the eyes and safe for the plate. This form of light, however, develops considerable heat, and for confined dark-rooms is hardly advisable.

Last we come to oil, and properly handled it serves its purpose most excellently. Any lamp, to burn well, and without odour, should be kept reasonably clean, and the dark-room lamp is no exception. Two points concerning its construction should be noticed: first, that it does not leak white light, and second, that the wick may be raised or lowered from the outside, the latter being a more important consideration than it would seem at first sight.

It is always advisable, where possible, to place the light outside the room. This at once does away with overheating and vitiating the atmosphere. Where this is not possible, try and arrange the lamp so that the current of hot air rising from it will pass through a chimney to the outside, and have an opening near the floor of the room to permit the ingress of fresh air. A moderate degree of ventilation is thus secured, and the room becomes less like the "sweat-box" it so frequently resembles.

A frequent practice is to place the light in front of the worker, so that the rays from it are reflected into his eyes in the most direct manner possible. A little common sense applied to matters photographic will often work wonders; and it is strange to see how many otherwise unintelligent men will continue in the paths of thoughtlessness simply from force of habit. Most of us who are possessed with a modicum of intelligence would refuse to read with a light in front of and nearly on a level with our book, knowing well the great strain to which our eyes would be subjected.

Why not follow this out in the dark-room by placing the lamp to the right in such a manner that the light will be directed across us and towards our left? The plate upon which we are working will then be illuminated just as well as in the previous case, and the reflected rays, instead of blinding us, will pass harmlessly off and be absorbed by the black wall on our left. Not only this, but the whole shelf upon which we are working will be illuminated, and the graduate containing the developer will lose its marked tendency towards the sink so frequently and painfully noticeable at critical moments.

The advantages of having the interior of the dark-room painted black are very great. In many situations it is almost impossible to insure absolute lightness of joints, and a few rays of white light frequently make their appearance after we have become accustomed to the general dimness of our surroundings. With white or light-coloured walls these rays may be reflected with serious results, while on a dull, black surface they are absorbed, and only at the spot where they first fall would a plate be fogged.—*Anthony's Bulletin.*

REVIEWS.

Das Atelier und Laboratorium des Photographen. By Dr. J. M. Eder. (*Wilhelm Knapp.*)

Most of our text-books and manuals of photography, while devoting much space to the history of the art, and the various processes which have from time to time been introduced and modified, give scant attention, or none at all, to those important subjects, the construction and arrangement of the studio and of the dark room. Dr. Wilson's "Quarter Century of Photography," and one or two other books, are free from this reproach, but it is true of the great majority. So that this manual of Dr. Eder's covers to a large extent new ground, and the new ground has been tilled in a very thorough fashion. From the nature of the subject, many illustrations have been called for, and, although some of these are old friends, most of them are new, and of very good quality. The text, which covers 166 pages, is embellished by no fewer than 325 illustrations.

The first part of the book is devoted to the construction of the photographic studio or glass room, and every proposal and suggestion which has been brought before public notice during the last twenty years seems to have been docketed, so that it might appear in these pages. Next we have the various arrangements possible for exposing printing frames out of doors and under cover; but here we note that some methods common in large English establishments have been omitted. Enlarging studios are fully dealt with, and the furniture of the studio, in the way of headrests, accessories, &c., is not forgotten.

Equal attention is given in the latter part of the volume to the construction and arrangement of the developing room, and the various methods of lighting are fully discussed and well illustrated. Other chapters deal with portable developing tents and changing boxes, and the various adjuncts which are found in a well-appointed photographic establishment. The book is a distinctly useful one, and its author's name is a guarantee of its thoroughness.

Fallowfield's Photographic Annual. (Thirty-seventh year of issue.) (*J. Fallowfield, 146, Charing Cross Road.*)

The name of Fallowfield was well and honourably known in photography long before the new thoroughfare, in which his present spacious premises are situated, was dreamt of. The wonderful variety and completeness of the establishment may be gathered from a perusal of this bulky volume, which contains an illustrated description of almost everything which the trade now produces. In addition to the illustrations of apparatus, there are a number of collotype reproductions of excellent snap-shot pictures; and although these are not quite equal in beauty to the originals, many of which we have had an opportunity of examining, they are sufficient to prove that the hand cameras with which they have been taken are equal to the highest class of work. The book is something more than a mere catalogue, it is a valuable work of reference, and its price—one shilling—bears little relation to its worth or cost.

Traité pratique de Photolithographie. By Léon Vidal. (*Gauthier-Villars et fils, Paris.*)

This volume, which has recently been added to the photographic library published by MM. Gauthier-Villars et fils, is an important addition to that already comprehensive series of books. Not alone does it deal with photo-lithography, as its title would seem to imply, for, in reality, it treats of the various methods and systems which are covered by the expression, "process work." Perhaps the most interesting section of the work is that which, under the title of "Autographie," deals with the various methods by which drawings in line can be reproduced as metal blocks ready for the ordinary printing press. In this chapter specimens of various grained and lined chalk papers are inserted, so that the reader, if he be of an artistic turn of mind, can actually try his 'prentice hand at the work. There are, too, several very good examples given of various styles of drawing, showing their fitness for photographic reproduction. One example of lined paper is of especial value and interest. This is a landscape shown in four different stages of progress. First we have the completed picture; next a mere outline in black on lined paper; next an example in which half-tones have been removed by partial scraping; and, finally, one in which the high lights have been taken out by the same agency. The various tools used in executing the work, as well as the apparatus involved, are described and well illustrated. M. Vidal's book is a good one.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, SEPTEMBER 29, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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JOURNALISTIC PHOTOGRAPHY.

AT the Congress of Journalists, which was held last week in London, it was only natural and seemly that the help afforded by photography to illustrated journalism should receive recognition. And this was notably the case in the paper read on Friday in the Egyptian Hall of the Mansion House, by Mr. W. L. Thomas, director and founder of the *Graphic* and *Daily Graphic* newspapers. We need hardly point out that no one is better qualified to deal with such a subject, for Mr. Thomas is at once an artist, and one who, by his position, is brought into daily contact with photographic work as applied to journalism. He has had the opportunity of peeping behind the scenes almost ever since an illustrated newspaper became practicable, and has therefore seen how photography has gradually insinuated itself into the work.

It is not long since that the artist in black and white could afford to laugh photography to scorn. A box-wood block, rubbed with a little Chinese white, together with a lead pencil, were all he needed to produce a drawing which could quickly be engraved and printed, albeit in the operation the drawing itself was cut up and destroyed. Then came the photographer, who pointed out what a pity it was to destroy such works of art, and who showed how they might be executed on paper or card, and *photographed* on the wood block, leaving the original work unimpaired. This was a great advance indeed, and one for which the artist ought to have been, as he probably was, profoundly thankful.

The next departure was one by no means less welcome to the artist, but it hit the poor engraver hard indeed. This was the introduction of the zinco method, by which a line drawing in black and white could, within an hour or two, be reproduced as a printing block in facsimile. This was a welcome innovation to the artists, who had been wont to tear their hair with anguish at the manner in which, as they said in their haste, the engraver utterly ruined their work. Here was a method by which every line of the original drawing was faithfully reproduced as in a mirror. As in a mirror, too, everything was reversed; right was left, and left was right, and this was, of course, what was wanted for the printing press. As a photographer would say, you must have a negative from which to print a positive. So the artist obtained what for a long time he had been hankering—a method of engraving which would not tamper with his lines, while, at the same time, he had the comfort of knowing that his old enemy the engraver had at last been punished for his misdeeds.

The last photographic advance in the field of journalism was the introduction of the half-tone or Meisenbach block. This was not altogether a happy thing for the artist, for, by this method, it became possible to turn a photograph into a block direct. The camera, therefore, came for the first time in direct competition with the pencil and brush in half-tone work. But, at the same time, the new process conferred an immense benefit on artists by making it possible for wash-drawings in Indian ink and sepia to be reproduced in block form without the intervention of the graver. That this method has been much utilised may be seen from a glance at any of the illustrated periodicals. In these pictures every touch and brush-mark is faithfully reproduced, and the creator of the original cannot any longer complain that his work is spoilt in the process.

But what is to be the next advance in this progressive or aggressive journalism, and how far may we expect photography to take part in the work? Mr. Thomas points out that it is dangerous to prophesy unless you *know*; but he believes that the future of journalism will be associated with increased discoveries in photography and electricity; that some combination of these two branches of science will enable a picture to be telegraphed from place to place, just as ordinary verbal messages are sent over the wires at present. And there is much which induces one to believe that this prognostication will prove correct. Bakewell long ago showed how a design could be telegraphed. Cowper's writing-telegraph later on proved that a line traced at one spot could be automatically and simultaneously reproduced at another place miles away. This idea has been further improved upon by Professor Elisha Gray, who, by means of his recently invented *telautograph*, has shown how sketches made at one station can be transmitted to another. Such inventions as these foreshadow what it may become possible to do in the future. At present the results are but clumsy and imperfect; but they serve, like rough axe-marks on forest trees, to point the way. The telegraph itself was born of means of communication quite as crude and imperfect, and these have been improved from time to time, until at last in the telephone we have the marvellous result that living speech is made to traverse hundreds of miles in a second of time. With such a triumph of science before us, by which a human ear in Paris can be made to vibrate by lip movements in London, can we think it impossible that something of the same kind may not be in store for the sense of sight, and that presently we may *see* our distant correspondent while we listen to his utterances? But before that epoch arrives pictorial telegraphy will be an accomplished fact.

SENSITIVENESS OF PHOTOGRAPHIC PLATES.

BY PROFESSOR GEORGE W. HOUGH, NORTH-WESTERN UNIVERSITY EXAMINER, ILL.

THE extensive use of photography in science, art, and industry makes it desirable to know something regarding the sensitiveness of the plate employed for any specific purpose. The subject, however, is one of great difficulty, owing to the fact that we have not been able hitherto to secure a satisfactory standard of light with which to compare plates.

The method now in use by the makers of commercial plates to indicate sensitiveness is far from satisfactory, since there is no direct relation between the numbers used by the same maker, and still less when the plates of different makers are compared. The number twenty-five of one maker may indicate greater sensitiveness than the number fifty of another; and in general the numbers do not convey any definite information as to the time of exposure required. It seems to me that it would be an important step in advance if the makers of commercial plates would at least adopt a uniform system in indicating the sensitiveness, so that the numbers (even if arbitrary) would in all cases have the same meaning.

It appears now well-nigh impracticable to use sunlight as a direct standard for illumination, unless a standard plate be adopted for comparison. But I think it is not impracticable to employ artificial light which will give an absolute measure of sensitiveness for the light employed. Artificial light, however, whether it be from burning magnesium, the electric lamp, or the flame of a candle, does not have the actinic properties of sunlight, and hence different brands of plates which have the same sensitiveness for any particular artificial light may be quite different for sunlight.

It seems to be tacitly assumed, however, by most writers that the standardising of a plate in one particular artificial light is all that is necessary. On the contrary, the problem is only partially solved.

During the past ten years I have made hundreds of experiments on the relative sensitiveness of plates in candlelight and daylight, from which it is concluded that the plates of different makers do not necessarily hold the same relation of sensitiveness for the two kinds of illuminations. In the standardising of plates where the minimum visible is used as the measure of sensitiveness, we meet with a peculiar phenomenon, which may greatly impair if not entirely vitiate our results. I refer to the effect of extraneous light received by the plate in its manipulation.

When the wet collodion plate was in general use it was imagined by many that the plate became more sensitive if subjected to preliminary or supplementary exposure. In 1884 I experimented on an emulsion plate and found no change in sensitiveness due to preliminary exposure, and hence inferred that the only effect was simply fogging, which would cause the collodion or emulsion plate to start more quickly in development. I subsequently found that this view of the subject requires some modification. The reason why no difference was noticed in 1884 in the case of preliminary exposure was undoubtedly due to the fact that the plate had already received, in the process of manufacture, all the preliminary exposure it would stand. In the early days of commercial emulsion plates, they were frequently fogged so badly before they reached the consumer as to be greatly impaired, and sometimes practically valueless.

Last year, in making experiments on the actinic effect of ordinary red glass used for dark-room illumination, employing a 10-candle-power lamp, I found such discordant values for different pieces of the same plate when exposed and developed under similar conditions as to call for an investigation of the cause. The statement has frequently been made that the same plate, in its different parts, indicates great variations of sensitiveness. This idea is so directly opposed to everyday practical work in landscape and portrait photography as to seem well-nigh incredible. In fact, if it were a common occurrence one could not make a correct negative. It occurred to me that the abnormal results which I obtained were in some way connected with the manipulation of the plate during the exposure and development. I accordingly made the following experiment:—A Seed No. 26 4 by 5 plate was cut in three strips, using a very feeble light during the operation. Strip No. 1 was kept in the dark; No. 2 received a preliminary exposure of two seconds in the dark-room at one foot distance from the red glass window; No. 3 received a supplementary exposure of two seconds in the same way. The three pieces of plate were successively exposed in the sensitometer to the light of a candle for ten seconds, placed at ten feet distance. They were then developed together in total darkness. Strip No. 1 printed the figure 4; Nos. 2 and 3, 8 and 10 respectively. This experiment indicated that when a plate received a preliminary or supplementary exposure it appeared to be about five times more sensitive.

I had observed a similar phenomenon in the case of wet collodion in October, 1891, but attached no importance to it at the time.

The most sensitive wet collodion plate which I have used requires an exposure of 2·5 seconds for a naked candle at one foot distance to make a legible impression, but by a suitable amount of preliminary or supplementary exposure the time may be reduced to 0·3 second, indicating an apparent increase in sensitiveness of eight times. A great many experiments have been made with various kinds of emulsion plates, in candle-light, feeble daylight, and through red glass, all giving similar results. In order to get the maximum effect, the plate should receive all the preliminary exposure it will stand without producing dense fog. If there is too much fog the numbers will be buried under it.

This peculiar behaviour of photographic plates in light of feeble actinic energy explains very clearly why experimenters have got such discordant results in attempting to standardise them. The phenomenon probably disappears when strong daylight is used; for we know by experience that preliminary exposure does not make a plate more sensitive when used for a landscape negative. The subject may, however, have an important bearing in astronomical photography, where the light has very feeble actinic energy, as in the case of stellar photographs.

The following appears to me to be the explanation of the apparent increase in sensitiveness, due to preliminary exposure. A photographic plate may receive a certain amount of light, and when placed in the developer show no visible blackening of the film. This fact is apparent in using a slow plate, like wet collodion. A plate, therefore, which has had a certain amount of preliminary exposure may be under such strain that a small amount of additional exposure will enable the developer to reduce the bromide of silver. Under this conception the actinic effect should be measured by the intensity of the light multiplied by the time, plus a constant; the constant being a function of the original sensitiveness. In landscape photography the constant would be such a small interval of time as to be entirely lost.

In view of what has just been stated regarding the behaviour of plates in light of feeble actinic energy, it is readily seen that our present method of standardising plates, by using the minimum visible, is open to very serious objections, owing to the difficulty in manipulating the plates in the dark-room. With the more rapid commercial plates a single second exposure before the developing lamp is sufficient to materially modify the result.

After considerable thought on this subject, it has occurred to me that we can most readily get a uniform system for designating the sensitiveness of plates by adopting an arbitrary plate as the standard of reference, and making our compositions by daylight as well as artificial light. The wet collodion plate has frequently been suggested as a standard of reference; but it has been objected to on the ground that the sensitiveness would not be constant. As a matter of convenience, I presume a slow emulsion plate would answer the purpose better, since such a plate could be interchanged among the makers of commercial plates. By adopting such a method we would at least have a homogeneous system.

I have at different times determined the sensitiveness of nearly all well-known brands of commercial plates for daylight, for candle-light, and for red glass. My normal collodion plate is used as the standard of reference for daylight comparisons.

The following are some general results for sensitiveness in daylight:—

Wet collodion	1
Slow lantern-slide plate	10
Rapid emulsion	120
Most rapid plate examined	220

For candle-light, or any other artificial light, the absolute time required to make a legible record can be ascertained. For a naked candle at one foot distance, the following are some of the results:—

Normal collodion	2·5 sec.
Slow lantern-slide plate	$\frac{1}{10}$,,
Rapid emulsion	$\frac{1}{150}$,,
Most rapid isochromatic	$\frac{1}{500}$,,

—*Read at the World's Congress of Photographers.*

THE PALL MALL EXHIBITION.

THE Exhibition at Pall Mall opened on Saturday last with the usual conversazione, on which occasion the numerous guests were received by the President, Captain Abney, who was supported by various members of the Council. The room was well filled throughout the evening, and most of those well known in the world of photography were present. The visitors had more room to move about than on former occasions, and all recognised this as a great improvement, it being due to the absence of the screens. These obstacles, besides being always in the way, were no good as picture supports, for the frames placed upon them were always in such a bad light that no one could see them properly. Hence the removal of the screens is a matter for rejoicing on all hands. Further space is made available by shifting the lantern rostrum to the end of the room. The Exhibition generally must, we think, be regarded as somewhat above the average, but whether this is due to an all-round improvement in the quality of the work sent in, or to judicious selection upon the part of the hanging committee, we are unable to say. If the pictures hung furnish any guide to the matter we should be inclined to affirm that silver printing on albumen paper is almost a thing of the past; and a glance at the catalogue, which names the process by which nearly every picture is produced, only confirms that impression. "Platinum," "bromide enlargement," "gelatino-chloride," "carbon," "sepia-toned platinum," occur over and over again, the word "silver" only occasionally putting in an appearance, as if it were simply by way of protest against these newer printing processes.

The judges are Dr. Emerson, Colonel J. Gale, F. Hollyer, F. M. Sutcliffe, and J. B. B. Wellington, and they have presented nine medals. They seem to have done their work fairly well, their idea evidently having been to acknowledge and show their appreciation of work aiming at a higher standard of artistic or painter-like quality, as against the mere correct, sharp, and what may be called the photographer's photograph—the picture that is taken without thought or arrangement, just because it is there in front of the operator. We are the more inclined to note this, as more than one writer has objected to the call for more artistic work, saying that a photograph is a photograph, and ought to be looked upon as such, and not criticised as though it were a painting or work of art; that photography was a science and could never be an art, and so on. Still, in this exhibition we find there are several photographs showing a great deal of art, proving that the artistic "faddist" was, in the main, not quite incorrect, and, curiously enough, the very pictures showing, or trying to show, the higher artistic endeavours have been chosen by the judges for the receipt of honours. We, at the same time, cannot help alluding to the fact that in one or two cases the judges appear to have been oblivious to very evident excellence, notably in the case of Mr. Boissonas, No. 226, "An Artist's Rise and Fall; a Study of Two Children at Play"—a series of pictures describing with infinite humour and charm, combined with perfect work, the adventures of the infantile artist and his more grown-up aunt. Art is generally supposed to come in where literature ends, and these pictures tell their story, and they have a story to tell, which is not always the case with pictures, with a simplicity and perfection of workmanship worthy of an old Dutch painter.

In this first notice, we intend to confine our remarks to such works as bear the label "Medal" on their frames. No. 3 and No. 72, "Amongst Mines and Miners," thirty-two pictures of scenes in a west country mine, taken with magnesium lamps combined with lime-light, by J. C. Burrow, are highly interesting as being descriptive of a miner's life. They are excellent photographs, and in some instances show a considerable appreciation of light and shade and pictorial effect. No. 18, "Study of a Child," bromide enlargement, by W. A. Cadby, shows a young girl draped in a transparent robe, sitting down with either a looking-glass or a burning-glass in her hand. The picture is very grey and vague, and the background seems as much in evidence, if not more so, than the figure; still it is a try in the right direction. Mr. Cadby has another picture of a similar kind, numbered 12 in the catalogue, and though the honourably distinctive label is on No. 18, I presume that the medal embraces the two pictures, for No. 12 is very much the better one, the figure is more graceful in pose, and the story much clearer. The little maid sitting down (it is true upon nothing), with her hands to her eyes, and the broken vase by her side, makes a very pretty arrangement. No. 40, "Un Harem en Déplacement" (collotype), by Emile Frechon, is the next medalled work. M. Frechon has two other pictures, No. 27, "Sous les Couriers Roses," and No. 36, "La Lessive au Désert." The distinctive label is placed upon No. 30, a very good picture of camels with huge packs on their backs, travelling through a bit of sandy desert ground, printed on rough paper, but still showing great delicacy of detail. The action of the camels is happily caught, and the picture is very well composed. It is hard to say if this is a better picture than No. 36, representing a group of Eastern people at a stream but, as in the previous award mentioned, we suppose the conglomerate qualities of all three pictures have been considered. No. 40, "Omegna—Lake Orta," by J. A. Sinclair, is a rather aggravatingly foggy picture, printed on rough paper, water, distant buildings, pagoda or something, bank and tree in foreground, and girl stooping down occupied in some way that is not apparent. It is well composed, but somehow the general fogginess is distressing, as though one were looking at the scene through dirty spectacles. Mr. Charles Moss is the next fortunate exhibitor, with his four carbon prints, Nos. 53, 54, 55, and 56, all landscape scenes, and very beautiful they are. No. 55, "After Sundown," bears the honour indication. The conglomerate arrangement apparently applies here again, for No. 56, "On the Marshes—Evening," is far and away the better picture; it is as good a bit of landscape painting (we use the word painting, though photography is not an art yet) as one could wish for, and would have delighted the heart of De Wint, and, in fact, suggests the idea that Mr. Moss must have a knowledge of the works of, and an admiration for, that artist; at all events, he certainly shows in this picture that he possesses much of De Wint's appreciation of nature and skill in rendering it. It is perfect composition, and full of poetic feeling. No. 54, too, "Sunshine and Rain," is choice and elegant. No. 103, "The Proud Turk," by J. S. Bergheim, a study of a man's head and shoulders, is very yellow in tone, and printed apparently on canvas; it has a medal. We next come to a series of twenty pictures, unostentatiously and humbly described by the artist, Count W. von Gloeden, as "Figure Studies." Taking them all in all, they are the most wonderful examples of figure work yet seen in any photographic exhibition. They are beautifully arranged and the technique is beyond praise. They are studies of boys, nude or in some cases partly draped; the *locale* is Sicily. They are full of sunlight and grace and youthful vigour. It is a treat to find someone with the courage, in these somewhat maudlin and falsely sentimental days, to give us pictures of the Creator's most perfect work, the human form, and, certainly, all thanks are due to Count von Gloeden for these really masterly productions. Two of them, Nos. 218 and 241, are ambitious compositions containing each five figures with a distant sea background; the rest are mostly single or two figure subjects. The pictures with the larger number of figures are well composed and thought out, and the figures themselves statuesque and graceful; if one can find a fault, it is that they are rather dark in tone. With regard to the other studies, space will not permit of a detailed description of all, though many of them show greater excellence than the larger works. It must, therefore, suffice to call attention to No. 240—the back view of a boy standing on the lower part of the trunk of a tree. His head, it is true, to be hypercritical, might have been an inch or two to the right or the left, otherwise there is nothing to mar the elegant composition of this study. The graceful boughs of the tree lend themselves perfectly to the making of the picture, and the flower-pots at the lower part all help the artistic lines. There is another study immediately above that is almost as good, quite Alma Tademaesque, in fact, in the use made of the large vase.

Photography not an art? Go to! Look at this photograph, No. 240, and then think of what a lot of pictures you have seen that were "art," and which were as chalk to cheese in comparison to this. No. 248, by Mr. John Howson, described as an enlargement from a quarter-plate, represents a ship, sky, water, and some other ships in the distance, is very brown and considerably indefinite, and is placed in heavy gold frame, and immediately above it is another sea piece, showing good definition in a very cold blue sea, and put in a steel frame. Possibly they were thus hung for contrast sake; but it seems unfortunate, as the wants of the medalled picture are thereby more pointedly called attention to by the possessions of the unnoticed work. No. 254, "Waiting and Watching," by Miss Emma J. Fitz, brings us to the end of the works singled out for praise. We are glad that the judges have distinguished this very pretty little figure study; it is only a fisher-girl sitting on a bank, with her face in tone against the sky, and a distaff in her hand. It is of quite a different order of subject from Count von Gloeden's figure pictures; but in its own way, with its tender treatment and delicacy, is very much to be admired.

(*To be continued.*)

In the opinion of Professor Pickering, of the Harvard Astronomical Station, Arequipa, Peru, the planet Jupiter is not self-luminous, and is visible only by reflected sunlight. It is surrounded by a rare atmosphere outside the cloudy envelope, which is capable of producing a measurable refraction. He states that at a height of 1,900 miles above the planet's limb this refraction is appreciable.

Messrs. York & Sons, the well-known lantern slide makers, of Notting Hill, London, have issued a classified index to their general catalogue of transparent pictures. This index alone occupies twelve pages of closely printed matter, and it may therefore be regarded as being also an index to the extent of Messrs. York's business. The twenty-fourth annual supplemental catalogue of the same firm has also reached our hands. It contains many novelties, among which Chicago and its Fair occupies a prominent position.

PHOTOGRAPHY AND PHOTO-CHEMISTRY AT THE BRITISH ASSOCIATION, NOTTINGHAM.

BY C. H. BOTHAMLEY.

AT the meetings of the British Association there are rarely any papers that can strictly be said to be photographic, but it not unfrequently happens that some of the papers in the Chemical and Physical sections have more or less bearing on photography, and, of late years, there has always been increasing evidence of a tendency to utilise photography as a means of record and research.

The two departments of research in which the use of photography is most in evidence are geology and meteorology, and in each case the organisation of the work is in the hands of a special committee. The Geological Committee this year made a very good exhibition of prints, illustrating the detailed geology of parts of coast-lines, &c., and there were also prints illustrating the explorations in the ancient village at Glastonbury. The Meteorological Committee made a short but interesting report, from which it appears that Sandell plates have no advantage, for the purposes of cloud photography, over single film plates of the photo-mechanical or lantern-slide types, and the Committee repeats the statement made last year, that the easiest way to obtain good negatives of clouds is to use a slow plate and expose on the reflection from a black glass mirror. The direction in which work is at present most urgently needed is the investigation of the changes in high-level clouds. As regards lightning, it seems that all the photographs in the possession of the Committee show a narrow ribbon structure. A distinction is drawn between a lightning *flash* which lasts but a small fraction of a second, and a lightning *discharge* which may last for several seconds, and consists of a succession of flashes in the same path, or in paths closely related. The view that the reduplication of flashes in the photographs is due to movement of the camera during exposure is no longer tenable.

The optical lantern was greatly in evidence during the Nottingham meeting, and in no fewer than five sections papers were illustrated by its aid, and it was also in use at both the evening lectures.

Amongst the physical apparatus, the exhibition of which was one of the features of the meeting, there was a new lantern for scientific purposes, constructed by Newton & Co., and designed for either horizontal or vertical projection. The objective, carrier, and front half of the condenser can be turned through a right angle and fixed in a vertical position. A mirror at an angle of 45° reflects through the vertical system the horizontal beam that comes through the back half of the condenser, and a mirror or prism attached to the objective projects the image on the screen. This is a great improvement over the earlier arrangement of two lanterns, with the upper one made to swing, body and all, into a vertical position.

Photo-chemistry formed the subject-matter of several reports or papers in the Chemical Section.

Prof. J. J. Hummel read the report of the Committee on the "Action of Light on Dyed Colours." The work during the past year has been confined chiefly to dyes giving various shades of red. The relative effect of light was practically the same whether the dye was on wool or silk. The most fugitive reds are the dyes of the eosine group and their allies, whereas the permanent or "fast" dyes belong almost exclusively to the azo groups of colouring matters. The most permanent reds are madder, cochineal, hermes, alizarin, chromotrope 2R, and chromotrope 2B. It will be noticed that some of these are natural and some artificial, and, in the report, stress is laid on the fact that, contrary to the popular belief, many natural dyes fade rapidly when exposed to light, whilst several artifical dyes are as permanent as any known natural dyes giving the same colours.

Dr. A. Richardson gave a very interesting demonstration of the expansion of chlorine and bromine when exposed to light, care being taken to avoid any external heating effect. The statement that this expansion takes place was first made by Budde, but has not been confirmed by other observers, and in fact seemed to be disproved by the experiments of Roscoe and Bunsen. Richardson showed that the failure to observe the expansion was probably due to enclosing the sulphuric acid, which serves as an indicator, in a tube of too small diameter, so that the expansive force was unable to overcome the capillary resistance. Sir H. Roscoe, who was present, thought there could no longer be any doubt of the fact, and that Dr. Richardson's explanation of the failure of other observers was probably correct. Considerable discussion followed, in which it was made clear that the expansion is due to the internal heating of the gas, owing to the absorption of radiant energy.

Dr. C. A. Kohn described experiments that show that the reddening of carbolic acid or phenol when exposed to light is not due to the presence of any impurity, but is a property of the pure compound. The reddening, however, only takes place in the presence of air and moisture.

Dr. Richardson described an apparatus for exposing standard sensitised paper to light for definite periods of time. Two bands of cloth having two longitudinal slits are made to pass at a definite rate in opposite directions over the paper, so that the time of exposure increases from one end of the strip to the other. The moving power is clockwork instead of a pendulum, as in the original apparatus of Bunsen and Roscoe.

The manipulation of small telescopes by either amateur or professional astronomers is sometimes attended with difficulties in the way of focussing when a light portable stand is used, and especially when medium and high-power eye-pieces are employed. This is caused by the trembling of the instrument when the milled focussing head is turned by hand. Mr. George M. Hopkins, a well-known American inventor, has recently brought out a pneumatic device, which is attached so the telescope in such a way that the focussing can, we understand, be effected without trouble by simply pressing a collapsing bulb in the hand.

WAYSIDE WHISPERS.

It is within the region of possibility that, if we could look ahead for about a hundred years or so, we should see our fortunate descendants who desired to acquaint themselves with the ancient topographical features of their town dispensing altogether with the musty records preserved in the archives of our museums. In the place of the almost illegible documentary legacies, they will have a complete collection of photographs, giving in a clear and unmistakable manner a vivid portrayal of England in the nineteenth century. A leading photographic society in a southern county has just completed a systematic photographic survey of its county, in which the principal features of each parish have been photographically preserved for reference and comparison in future years. The idea is a splendid one, and is capable of any amount of development. What possibilities lie before the camera if the promise of the coming days is realised! From the point of view of the county antiquary or historian, the collections of photographs grouped together by a systematic survey of the country would be invaluable. We may hear before long of county historical surveyors—that the citizen of the future may study the land of his forefathers, not in the gloom of the museum, but in the brightness and beauty of art and picture galleries.

This is the season of bright, moonlight nights, and the enthusiastic amateur may find an excuse for solitary walks with equally enthusiastic young persons of the opposite sex by announcing their intention of taking moonlight views. The camera once fixed and the picture carefully focussed, the couple may safely leave the harvest moon to do its work for two or three hours whilst they enjoy the dreamy magic of the hour; and if that wicked moon, which has witnessed many similar infatuations, does wink the other eye, well, who can wonder?

They play photography down pretty low in the South and East of London. In the first-named district we have a grocer announcing "Your portrait and a pound of tea for half-a-crown." In the East End there is a diabolical machine which takes the place of the automatic photographer. I don't know what it is called, but the article it produces is termed a "phototype," and is turned out, framed complete, for twopence! My attention was arrested in a London street a few days ago by the spectacle of an interesting youth in "pearlies" standing in front of a small box on the top of a tripod. With a wild fixed stare he gazed at a tiny hole in the box for several seconds, his face relaxing into a broad grin when the "operator" informed him that the process was complete. The eager expectations of the crowd of youths who waited with the victim for the picture was distinctly funny.

It is a relief to turn from photographic art as it is known in the East End to that which ranks considerably higher, both socially and artistically. It is interesting to learn that, according to Mr. Downey—who, of course, ought to know—Her Majesty the Queen never spoils a plate when sitting for her photograph. Moreover, although she had many portraits taken at various times, she rarely disapproves of any of them. Many of our photographic readers who are attempting slowly and laboriously to climb the ladder of fame would rejoice heartily could Her Majesty's excellent example be more generally followed.

Here's a tip for working photographers. Many sitters are not above taking a hint. Why not cut out or reprint the above paragraph on a neat card and keep it in a prominent position in their studios?

"No pay, no photographs," is the motto of New York photographers, and all attempts to transgress this rule are strongly resented. An action is now pending in the New York Courts, in which A. G. Massey, photographer, claims 10,000 dollars from Moses King, for an assault "and loss of whiskers" in a "scrap" between the two men. It is said that King, who is a publisher, called for some photographs which he had ordered, and desired to take them without first paying the piper—or, to be correct, the photographer. In the conflict which ensued, King pulled out Massey's luxuriant whiskers, and is reported to have furiously pounded the photographer. All of which goes to show that the life of the Knight of the Camera is not exactly a bed of roses!

Truth, after all, is stranger than the strangest of fiction! A sturdy peasant from the Tyrol was standing at the window of a photographer's shop in Vienna, gazing at a reproduction of a famous group of "The Three Graces." The peasant did not seem insensible to the perfection of form exhibited by the group, but, after a while, he burst forth:—"What fools women are all over the world! Only think that those girls have not got enough money to buy themselves a suit of clothes; yet they spend the little that they do possess in having their photographs taken!"

Great is the amateur and mighty are his works! Touring in the Highlands recently, the morning after my arrival at a certain village in the Island of Mull, I was waited upon at my hotel by the local bank manager. This gentleman informed me that he had heard that a tourist with a camera had arrived, and, as there was not a resident photographer within fifty miles, he besought my aid in a matter which affected not only the village, but the whole island. It appeared that an ancient bridge, which had weathered the northern storms for about three centuries, was about to be demolished, and the work was being delayed because it was desired to have a permanent record of it. Of course I readily consented to do the town the service required of me, but when I reached the spot a curious scene was enacted. The bank manager turned out to be a member of the district County Council, and he spent about a quarter of an hour in trying to induce two bashful colleagues to stand with him on the bridge and be permanent records also. They could not be prevailed upon, however. Desire to make part of the picture was mingled with a fear lest their fellow-members should think that they had put themselves too much forward, and this latter eventually proved the stronger, for they stood modestly by whilst my financial friend, together with the village blacksmith and several brown-legged urchins, posed on the bridge in front of the camera.

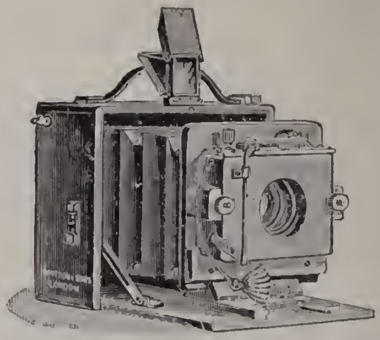
Photography and fun have more in common than many people imagine, and it is only right that the lighter side of the art should be made to serve a useful purpose. Life is only a dull sort of affair at the best; but, if we had more incidents like the following, we might manage to get a smile in now and then. A commercial traveller, waiting upon a tradesman in the provinces the other day, handed him, by mistake for his card, the photograph of his "best girl," remarking that he represented that establishment. The tradesman examined the portrait critically, observed that it was a very fine establishment, and returned it to the astonished and blushing traveller with a hope that he would soon be admitted into partnership!

Captain Jinks.

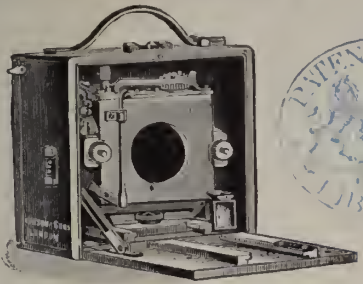
APPARATUS AT PALL MALL.

The Apparatus Section of the Exhibition is not a large one, and this must inevitably be the case at Pall Mall, in consequence of the healthy rule which forbids the entry of anything which is not new or which does not present some novel feature. This at once prevents the Exhibition gallery being turned into a mere shop, and at the same time introduces apparatus which is worth the attention of visitors.

Messrs. Watson & Sons, of Holborn, show a special studio camera, a novel feature of which is an adjustable back. The camera itself takes a 15 × 12 plate, and it is obviously at the cost of wear and tear if the full-sized back is used every time a half or whole plate picture is taken. The new back avoids this waste, while, at the same time, it greatly adds to the comfort and convenience of the operator. The camera is supported upon the patent stand which has already received notice in our columns.



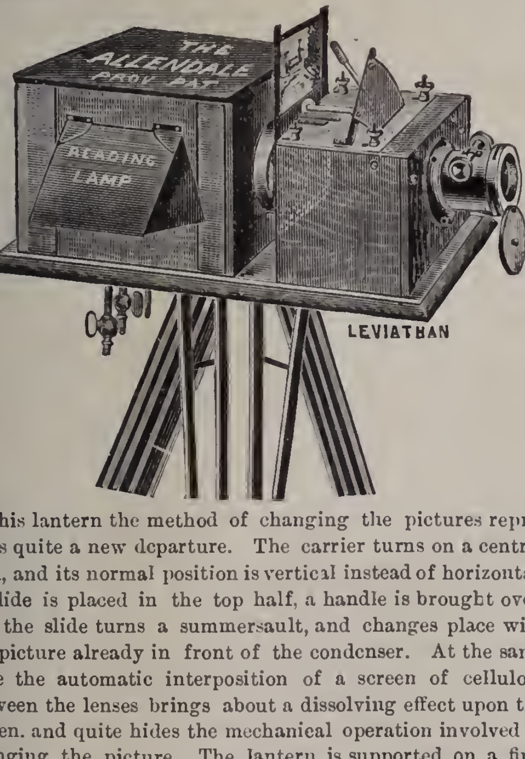
The same firm shows the "Vanneck" hand-camera, made in two sizes and constructed to carry plates or roll-holder ; and a very pretty model hand-camera, called the "Alpha," which we here illustrate. This is made in three sizes—quarter-plate, 5 × 4, and half-plate. It is constructed, as will be noticed, in box form, and is a wonderfully self-contained instrument, while its low price gives one the idea that its makers have tried how far good work can be associated with cheapness.



PATENT OFFICE LIBRARY

The Alpha hand-camera is also supplied in more elaborate form, fitted with every movement, double-extension, &c. ; so that the purchaser has the choice of a cheap instrument of simple form, or one of elaborate design at a higher price. Camera fittings in aluminium are a feature of Messrs. Watsons' exhibit which ought not to be passed over.

A totally new form of lecturer's lantern, and one which departs as far as possible from the usual design of such instruments, is presented by a firm whose trade mark and telegraphic address is "Leviathan" (London). Its general appearance is figured below.



In this lantern the method of changing the pictures represents quite a new departure. The carrier turns on a central stud, and its normal position is vertical instead of horizontal. A slide is placed in the top half, a handle is brought over, and the slide turns a summersault, and changes place with the picture already in front of the condenser. At the same time the automatic interposition of a screen of celluloid between the lenses brings about a dissolving effect upon the screen. and quite hides the mechanical operation involved in changing the picture. The lantern is supported on a firm tripod stand, and the gas pipes from the lime jets project, as shown, from below. This arrangement is a revival of a very old pattern, but it is good, and saves much space. The lantern has other features which recommend it as a most convenient form of instrmment.

(*To be continued.*)

PROCEEDINGS OF SOCIETIES.

Brixton and Clapham Camera Club.

At the last meeting of the Club, which was held at the Clarence Rooms, Coldharbour Lane, S.W., on Tuesday, the 19th inst., the chair was taken by the President, Dr. J. Reynolds, F.R.G.S.

A demonstration upon carbon printing was given by one of the members, Mr. F. W. Levett.

Four names were given in as candidates for membership, and further names will be gladly received. Photographers residing in the locality are informed that a Committee of Instruction has been formed for the purpose of assisting members, and a Committee of Criticism for the purpose of examining and criticising members' work.

Next meeting, October 3rd, paper by Mr. E. Dockree, on "Gelatino-chloride Papers."

South London Photographic Society.

September 18th.—Ordinary Meeting at Hanover Hall, Hanover Park, Peckham.—The President (Mr. F. W. Edwards) in the Chair.

The evening was devoted to a demonstration of "Lantern-slide Making," by Mr. H. E. Farmer. Several Ilford special lantern plates were exposed under negatives of different characters, and afterwards developed before the members. He sketched the apparatus used by him for making slides by reduction, and explained the method of using the same. Some slides, which were too dense for use by over-development, were reduced by the use of sulpho-cyanide of ammonium and ferridcyanide of potassium, which the lecturer considered preferable to hypo and ferrid-cyanide. Slides requiring more pluck and density were intensified by using a bath consisting of uranium nitrate, red prussiate of potash, acetic acid, and water. In the event of the slide becoming too dense by this method, the red colour can be discharged by using a bath of carbonate of soda, and the toning, after washing, started afresh, but not carried so far Several methods of rectifying various faults were fully explained by the demonstrator.

On October 2nd Mr. E. J. Lester will read a paper on "Outdoor Portraiture."

Hackney Photographic Society.

The Exhibition arrangements are as follows :—

October 17th, open at 7.30, pictures judged by Lieut.-Col. Gale, F. P. Cembrano, W. E. Debenham. Awards known at opening. Orchestral music.

October 18th, open at 12 mid-day. At 8, distribution of awards by Captain Abney. Orchestral music ; string band.

October 19th, open at 12 mid-day. Organ recitals by Mr. S. Moore and W. Fenton-Jones (hon. sec.). Lantern slides at 9.30.

Last day for receiving entry forms, Saturday, September 30th.

North Middlesex Photographic Society.

On Wednesday, September 20th, another of the series of Instruction Evenings was held, Mr. C. Beadle in the chair.

The subject, "Lantern-slides by Contact," was dealt with by Mr. A. J. Golding. He described briefly the *modus operandi*, explaining the kind of negatives which would give the best results, the method of obtaining the range of tones from red to black by a difference of exposure and restrained developer, the fixing, clearing, &c. ; and then illustrated his remarks by developing two plates. After this the members were set to work under his supervision, the result being that many really good slides were made to the pleasure and profit of the workers.

On October 9th, Mr. W. E. Debenham will demonstrate "Wet Collodion." An interesting evening is anticipated, to which visitors are welcome.

Ordinary Meeting, Monday, September 25th, 1893.—Mr. W. B. Goodwin, A.R.I.B.A., in the Chair.

Mr. Thomas Bedding lectured on "Stereoscopic Photography." He stated that stereoscopic photography was rising, and was, he believed, destined to rise still higher in the estimation of amateur photographers, when the simple principles on which it is based were more accurately known than at present. He fully explained those principles by which the stereoscopic or solid effect could be obtained by having an accurately paired pair of lenses of about four inches focus if it was desired to secure near objects, or seven inches if more distant views were desired. He described the method of printing, reversing the two halves of the print, proper method of trimming to get the best effect, and mounting. He recommended the pictures should be three inches from centre to centre. As to the selection of subject, he said that most subjects were suitable, but particularly those consisting of several planes which, that is to say, contained strongly defined foreground, middle distance, and distance; pictures contained in or near one plane were not so suitable, as they did not show sufficient solidity. Pictures should be well exposed, and soft, rather flat-looking prints, giving better results when viewed in the stereoscope than hard ones. A process which contained the picture on the surface, such as gelatino-chloride papers, was preferable; and warm tones were more natural in effect than cold ones. Spots or defects in one picture would, he said, appear when viewed in the stereoscope as though they were in both; but if one were printed somewhat darker than the other, the defect would to a great extent disappear.

Mr. Traill Taylor, who accompanied Mr. Bedding, produced several stereoscopes and some hundreds of slides, and kept the members interested and amused for some time by the wise and witty remarks and comments he passed upon them.

Mr. H. Smith took first place for pictures taken at West Drayton.

Birmingham Photographic Society.

Ordinary Meeting, Tuesday, September 19th.—Mr. J. T. Mousley in the Chair.

This was the first of the so-called one-man exhibitions, inaugurated by the Club, which it is proposed to hold through the winter. The gentleman showing, Mr. J. H. Pickard, had staged for inspection a large number of fine photographs, ranging from the lordly 15 by 12 to the humble half-plate, and the exhibition was very much appreciated. Mr. Pickard kindly made the tour of the room, giving interesting details of processes, &c., and answering the numerous questions put to him.

* * *

The celluloid mirror is a new invention which should have a future. A plate of transparent celluloid is coated with silver or other polished metal, over which another layer of opaque celluloid is placed, and you have a mirror which may be burnt, but which will not be broken by an accidental fall. It is hoped that this invention may be applied with advantage to optical instruments of large dimensions owing to the ductility of the substance, which permits of its taking the required form with greater ease than reflectors in metal, whilst possessing all the merits of the glass reflector.—*Invention.*

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Toning.—You can get sulpho-cyanide of aluminium, in solution, from Messrs. Hopkins & Williams, Cross Street, Hatton Garden. We have answered your other queries by post.

J. (Portsmouth).—We cannot advise you as to the best fitting for horizontal copying work without knowing what pattern camera you intend to adapt to the work. If the bellows move forward, the camera must be supported from the back, and *vice versâ*. Consult a dealer and he will be able to advise you, and make the necessary alterations.

Flashlight.—For the subject described you will require at least four lamps judiciously placed so as to avoid heavy shadows. Connect tubes—which should not be of very small bore—with good bellows or gas bottle.

Blue Coat Boy.—The blue process can be applied to lantern-slide making by coating glass with a solution of plain gelatine, allowing it to dry, and then treating in the usual ferro-citrate solution as you would paper. You will require a long exposure to obtain sufficient density.

Cordcoid.—The Pilsen Electric Light Company, Brook Street, Holborn, would supply what you want.

C. C. C.—We think that the fault is due to access of light—or too much red light—in the dark-room. You had better test this in the usual way by exposing a plate to the suspected light in a half-opened dark slide for, say, three minutes; develop, and note whether the exposed half darkens or remains unaffected.

Jane.—For cattle subjects in dull light use a large stop and some form of shutter which is under control as to time of exposure, so that this may be varied as circumstances may require.

A. B. C.—A portable screen of French origin of the kind which you describe was figured in these pages many months ago. There is hardly enough in it to justify a patent specification, and the publication referred to would certainly bar the right to do so.

M. (Ilfracombe).—If the varnish will not move after many hours' soaking in methylated spirit, it is clearly not soluble in that medium. Try benzole or chloroform.

Lantern.—A very good way of adding clouds to lantern slides already printed is to use a cover glass upon which the image of the clouds has been impressed. In other words, print your cloud negative on a lantern plate, shielding that part of it which will subsequently be covered by the landscape. After fixing you can obliterate any rough edge by the careful use of brush and ferrid-cyanide reducer.

E.—There is nothing to take exception to in the composition of the emulsion which you propose making, but we should advise the addition of 2 grains of chrome alum.

Sesame.—Apply to Messrs. Johnson & Matthey, refiners, of Hatton Garden.

X. Y. Z.—Answered by post.

* * *

Putney Photographic Society.—An Introductory Meeting will be held on October 2nd, at 116, Upper Richmond Road.

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1831. OCTOBER 6, 1893.

NOTES.

It will be remembered that, in January last, Mr. Lewis, of Ansonia, Conn., while photographing the comet Holmes, secured upon his negative the trail of a large fireball which happened to cross the sky at the time. Many stars appear on the plate, and by this means some fairly good measurements of the position of the fireball's trail have been secured. The most striking feature of the photograph is the irregularities of light on the path, due, it is believed, to a rotation of the stony mass, "more rapid at the end than at the beginning, and that the unequal amounts of burned material were thrown off according as a well-burned or a raw surface was for the instant in front." These words are quoted from an interesting paper contributed by Professor H. A. Newton to the *American Journal of Science*.

Messrs. Taylor, Taylor, & Hobson offer, for the second time, a prize of ten guineas for the best negative taken with a lens of their manufacture. It will be remembered that a similar competition last year resulted in the prize being awarded to a very charming "Highland Cottage Home." The entries will close on the last Monday in the present month, and all letters regarding the competition should be addressed to the firm, at their Slate Street Works, Leicester.

Amateur photographers and others who wish to secure a picture or two of an old building which is on its last legs, so to speak, must be quick about it, or the opportunity will be lost. We allude to Sandown Castle, near Deal, which the waves for the past twenty years have been destroying piecemeal. Little of it now remains, for at every tide the destruction goes on, and the place is so undermined by the action of the beach that at any time the ruins may collapse.

We visited the place not long ago, and found that there is an interior chamber, with a fine vaulted roof still almost intact, and with fear and trembling we took a camera within the crumbling edifice, and secured one or two pictures of this interesting place, which is scarcely likely to survive the storms of another winter. This castle, we may remind our readers, was one of several built on the same pattern by Henry VIII. as a defence against a possible invasion by the French.

Of these castles, Walmer and Deal still remain entire, and both are inhabited, but the remaining one, Camber Castle, between Winchelsea and Rye, is a ruin almost, and in as bad a plight as that at Sandown. Photographers who preserve records of these places are doing useful work.

There is much ingenuity exercised just now in the construction of optical lanterns, and more than one new pattern is at present on view at the Pall Mall Exhibition. Inventors are beginning to find out that the lantern need not be of the cumbrous size and design which has prevailed for so many years, and the instrument is being so re-modelled that the lantern of the future, which, of course, will be represented as in other things by the survival of the fittest, will probably bear very little resemblance to its prototype.

A very cleverly constructed and compact lantern was shown to us the other day by Mr. Ives, of photochromoscope fame. The entire apparatus was enclosed in a box smaller than that which generally contains a student's microscope. In two minutes Mr. Ives literally turned this box inside out, took from it a metal lining which became the container for the lime jet, and fixed the whole thing together ready for use. He has employed it, he tells us, on numerous occasions for lecture demonstration, and it does its work well.

A PHOTOGRAPHIC SCHOOL has been established at the Borough Road Polytechnic Institute, and the programme for the winter session, commencing this day, is now before us. The syllabus of the lectures, which take place on Friday evenings from eight to nine o'clock, comprehend everything which it is desirable for a student to know, and the aim of the lectures is evidently to make the instruction practical.

THE "special correspondent" must occasionally detest photography, which has such a knack of putting him right. The Paris journals, *L'Eclair* and the *Journal*, have come in for a little bantering on the discrepancies in their respective reports of the recent review of the German troops at Metz. *L'Eclair* had it that the Prince of Naples witnessed the review from a private stand, and, according to the *Journal*, the Prince remained in his carriage a mere spectator. The photographs taken show that each was wrong, for he was on foot the whole of the time, and stood between the Emperor William and the Duke of Baden. When special correspondents are also photographers, we shall not be favoured with conflicting evidence of this kind.

A PHOTOGRAPH just now of Lobengula would be decidedly valuable. So far as we know the Matabele king has never been photographed, though we believe Mr. E. H. Maund, who accompanied the Matabele envoys to England, made an attempt. The fact is the native South African, in his primitive state, has a superstitious horror of the camera. On one occasion a traveller, who had a photographic apparatus among his kit, tried to get a sitting from Umbandine, king of the Swazies, and it was represented to his Majesty, by way of encouragement, that Cetewayo and Sekukuni had both allowed themselves to be photographed. The argument was a fatal one. "Yes," said Umbandine, "and where are they now?"

A CRITIC has been pointing out the shortcomings of artists who illustrate natural history-books for children. In drawing birds they are lamentably deficient, and the writer says of the birds in a recently published book, "They look as if the artist had drawn the limbs and wings from stuffed birdskins, and arranged the attitudes according to the dream of somebody unacquainted with the open air." No doubt there is far too much conventionality in the average artistic treatment of birds as seen in book and periodical illustrations. Men who have been accustomed to repeat themselves over and over again find it difficult to alter. Indeed it may be questioned whether they desire to alter, for they are known by certain characteristics, and to lose these would be fatal to their reputation.

SOME time ago an artist held in high estimation, and deservedly so, as a delineator of bird life, thought he would try how far photography would assist him. He bought a camera, took some lessons, and commenced on his own account by photographing a live partridge. One experience was quite sufficient. He found that all his life he had been drawing partridges wrongly, but he dared not change. "Why," he said, "if I were to follow a photograph I should have to educate myself over again." And there and then he put the camera aside.

THE Dublin Water Committee has recently been carrying out experiments in rain-making. On the 20th inst., three dozen distress signals and one dozen rockets were fired into the air, and ten pounds of tonite were exploded on the ground. A copious fall of rain occurred shortly afterwards, especially on that part of the watershed between the Djouce and the Sugar Loaf Mountains. Whether the precipitation was directly caused by the fireworks is, however, a matter of opinion.

A RECENT interview with Professor Barnard, of the Lick Observatory, which is published in the New York *Sun*, contains some interesting statements with regard to his prolonged photographic study of the Milky Way. To show what progress had been brought about in instruments of observation, the Professor remarked that old text-books gave the number of suns in the whole of the Milky Way as about 20,000,000. With one dry-plate exposure of five minutes they could now photograph that number. The Lick Telescope shows 200,000,000 in all; photography showed even more than the telescope; and there were reasons for believing that the dark interstices on the photographs were also full of suns not near enough to be distinguishable.

RECENTLY Sir Howard Grubb was down at Greenwich Observatory to give the finishing touch to the object-glass of the fine new equatorial telescope of which he is the maker, and which has been set up at a cost—including the dome which covers it—of somewhere about £4,500. The casting of this 28 in. lens took Messrs. Chance Brothers, of Birmingham, about three years—that is to say, they kept on trying and failing for about that length of time before they were able to produce a perfect glass. They succeeded at length in turning out what may be regarded as one of the best, if not quite the largest, lens ever yet placed at the service of the astronomer. It is now mounted, and the telescope is practically complete. It may possibly be some little time before any trustworthy work can be done with it, for the great telescope has, of course, to be very carefully tested and adjusted. This new equatorial is what Greenwich has been sadly in need of for years. The work to which it will be more especially devoted is spectroscopic photography, though by a very ingenious mounting of the object-glass which permits of its being reversed, the telescope is available either for visual observations or for the photographing of the spectra of the stars.

FILM WORKING.

BY W. H. BARNES.

IN introduction, it may be remarked that the celluloid films of to-day are the outcome of various endeavours made from time to time to substitute, as a support for the sensitive film, something lighter than glass and less liable to breakage, and so to reduce the weight of the photographer's outfit. From its special suitability for the purpose, celluloid has come to be almost universally used as a support for the gelatine emulsion in the manufacture of negative films. That it is in all respects as perfect as glass for this purpose can hardly be contended ; but it represents our present stage of advancement in this direction.

The exact composition of different makes of celluloid probably varies : but, broadly speaking, the sheet of celluloid as coated (the solvents employed having then evaporated) consists mainly of converted pyroxyline and camphor, both of which are inert to the chemicals used in photography.

It may here be noted, for the benefit of those persons who labour under the impression that all our photographic improvements come from abroad, that the two essential items in the celluloid film are the result of English research and invention, celluloid being due to the late Mr. Parkes, of Birmingham, and gelatino-bromide emulsion to the labour of English experimenters.

Among the principal advantages obtained by using films are the saving effected in weight and bulk—points of great importance, not only to the amateur travelling, but also to the professional photographer doing outdoor work of any kind. The gain on these points is very apparent in the case of magazine hand-cameras, it being possible to carry so many more exposures. A comparison between the weight and bulk of films and plates respectively will illustrate this more freely. A gross of quarter-plates weighs thirteen and a half pounds, while the same quantity of films weighs two pounds one ounce ; a gross of half-plates, thirty and a half pounds ; films, four and a quarter pounds, in each case inclusive of packages. Again, a gross of plates packed will measure sixteen inches in height, while the same quantity of films measures only four inches : so you see, bulk for bulk, films take only a quarter the space, and weigh considerably less than a sixth of the same quantity of plates.

Other points of advantage which films possess are the non-liability to breakage, the small amount of room required for the storage of the negatives, and a lessened tendency to halation.

A considerable amount of want of confidence seems to exist in the minds of many who have tried to make their negatives on films instead of glass in the early days of film photography ; some of these defects were, doubtless, defects in the manufacture, due to want of experience in the use of a new material, while other, and perhaps the largest number of, failures were due to the fact that the manipulation which answered perfectly with glass plates required to be modified to some extent when using a material of such a different character.

The defects of manufacture have mostly been overcome by improved processes, and very little extra care is required to avoid the defects arising from errors in manipulation.

The question is frequently asked whether films keep as well as glass plates, and I have heard many condemnatory remarks concerning films in this respect, not at all justified by my own experience of them. An emulsion which keeps well when coated on glass will, so far as my observation goes, keep equally well on celluloid.

With regard to the suitability of the material, from a chemical point of view, to take the place of glass, I have already stated that the celluloid film is, when the solvents have evaporated, composed of substances which are photographically inert. We know this to be the case as regards the pyroxyline so long used as a vehicle in the wet-collodion process. With regard to the camphor, some of which undoubtedly remains in the film, and is supposed to tend to deterioration, with a view to set this matter at rest, I have made a few experiments, of which I now show you the results :—

No. 1 is a plate exposed as taken from the box, without being treated in any way.

No. 2 is a plate from the same box. A slab of camphor three inches square had one face carefully scraped over a straight-edge to make it as level as possible. This was pressed closely in contact with the emulsion side of the plate, and allowed to remain in this position for thirty-six hours.

No. 3 is also a plate from the same box. It was placed in a grooved box with a quantity of broken camphor, and left for thirty-six hours.

These plates were all exposed on the same subject, for the same time, and developed together in one dish, and there is no evidence of any effect produced by the camphor.

I have here also some negatives taken on films treated to ascertain the effect of pressure. A packet of six half-plate films in the paper envelopes only were placed in the ordinary letter-copying press, six pennies were laid singly on the package, and the press screwed down very tightly ; after thirty-six hours the films were taken out, exposed, and developed, and, although the pressure was sufficient to cause a perfectly glossy circular mark on the face of the film, where the penny had rested, no difference is observable after development.

There is an idea prevalent in the minds of some that an emulsion coated on celluloid is less sensitive than when coated on glass. I frequently try films and glass plates coated with the same emulsion, and do not find this to be the case.

We now come to the question of exposure. Celluloid films may easily be exposed in ordinary dark slides by placing black cardboard of the same size at the back of the film to keep them flat and take the pressure of the spring. This method works well when the rebate of the slide is fairly wide ; but, with narrow rebates, some difficulty arises, and film-carriers to hold the film are certainly more generally convenient. The films should slip quite loosely into the carrier, as, if they fit at all tightly, this causes a buckling of the film and there is also a danger of stripping the emulsion from the celluloid by the sharp edge of the metal grooving. Several patterns of film-carriers are in the market, and which, I dare say, are known to you. I have here one recently introduced by Messrs. B. J. Edwards & Co., which you will see is very simple and can be easily worked by following the directions printed on the back of the card.

In this way films can be worked very conveniently in ordinary slides ; but, to gain the fullest measure of advantage from their use, slides specially designed for films should be used, as these can be made much lighter and less bulky.

Here is a dark slide specially designed for films, but which can also be used for plates. This, like the film-carrier I have just shown, is the invention of Mr. B. J. Edwards. It will hold two films or plates, and two of these slides take up about the same space as an ordinary wooden one, and weigh considerably less. The shutter is of xylonite, coloured black on the one side and red on the other. Black outside indicates unexposed films or plates ; this draws right out, and after exposure is replaced, red outwards, which not only shows at a glance exposed and unexposed films or plates, but the red side can be written on with lead pencil, and thus affords space to make memoranda in reference to exposure, &c. Afterwards the writing can be erased with a damp sponge or cloth.

The development of films may be conducted in the same way as plates if it is only required to do one at a time. It is well, however, to have a full quantity of developer, and the use of a brush to ensure the absence of air-bells is certainly to be recommended ; but, even when developing them singly, films are less convenient to handle than glass plates, and, unless some contrivance is used to prevent them floating over one another, several cannot satisfactorily be developed at once. I have utilised for this purpose the metal frame of the film-carrier I have just shown, after giving it a coat of varnish. The films are simply slipped into the groove, without the card backing, in which they remain during the operations of developing, fixing, washing, and drying. The opening in the frame allows you to judge of density during development.

This is, however, somewhat of a makeshift contrivance, and I hope on a future occasion to be able to show you a more perfect holder which Mr. Edwards has recently designed.

In this way a film becomes as easy to manipulate as a glass plate, and several may be developed at the same time.

Developers.—With respect to the developers most suitable for films, it is best to use the developer with the peculiarities of which you are best acquainted ; a developer suitable for plates will answer equally well for films.

Personally I have always given pyro and ammonia the premier position as regards the quality of the negatives obtained.

Pyro and soda has, to a considerable extent, superseded it of late years, but the pyro and soda developing formulæ generally in use appear to me to give negatives lacking something of the quality obtained with pyro and ammonia.

In order to arrive, if possible, at a pyro and soda formula equal to pyro and ammonia, I have recently made a somewhat exhaustive series of trials, with varied proportions of soda and sulphite, in this developer, and have also tried various modifications of it. The following formula is the outcome of these trials, and I believe it to be decidedly superior to those generally in use. It is the only one I have employed that gives negatives quite equal to those developed with pyro and ammonia :—

No. 1 Solution.

Pyrogallic acid	1 ounce
Metabisulphite of potassium	1 ,,
Water	80 ounces

No. 2 Solution.

Carbonate of soda (crystals)	12 ounces
Water	80 ,,

No. 3 Solution.

Bromide of potassium	1 ounce
Water	9 ounces

To develop, mix equal parts of Nos. 1 and 2. For most purposes, the addition of 5 minims of No. 3 to each ounce of the mixed developer is recommended (or 1½ ounces of No. 3 may be added to the 80 ounces of No. 2). For instantaneous exposures, where under-exposure is probable, the bromide may be omitted, and also for studio work. This point as to the addition of bromide must, in fact, be left to the discretion of the operator.

If the colour of negative given by this developer is not considered grey enough, a greyer image may be obtained by adding two ounces of sulphite of soda to the No. 2 solution.

Fixing.—Very little need be said on this point. If the film negatives are manipulated without holders, it is advisable to fix in a *deep* dish, and to see that the films are well under the surface of the solution, otherwise stains may result. An acid fixing bath may be used ; a ready method of mixing this is to add two ounces of metabisulphite of potassium to each pound of hypo crystals. One ounce of the metabisulphite will answer, but I prefer the larger proportion.

Washing.—When a holder is not used, it is best, in placing the films in the washing tank, to place two back to back in one groove.

Drying.—After washing, they are best hung up to dry by means of spring clips ; the clips answer very well. The method of hastening the drying of negatives by immersing them in alcohol must not be practised with film negatives, as the alcohol attacks the celluloid.

Varnishing.—It is certainly advisable to varnish the film negatives, and this can be readily accomplished by means of this varnish, which is specially prepared for the purpose. Some of the varnish is poured into a dish, and the film is immersed for one or two minutes, and then hung up for the varnish to dry and harden : no warming of the negative is required.

Cleaning the Varnish off a Negative.—Should the removal of the varnish from a varnished film negative be necessary for intensification or other purpose, this is best effected by soaking the negative in some of the varnish for five or ten minutes, rubbing the surface with a pledget of cotton-wool, and then well washing it under the tap.—*London and Provincial Photographic Association.*

PHOTO-MECHANICAL PROCESSES IN ENGLAND.

BY W. T. WILKINSON, MANCHESTER, ENGLAND.

Half-tone Blocks for Type Printing.

To England must be given the honour of being the home of photo-mechanical photography, and a casual glance at the publications using photo-blocks will show that good use is made of such productions. The gauze used by Fox Talbot in 1854 has given way to perfect ruled screens, which, as a general rule, are made in America.

The old wet collodion process has no rival for the production of the grained negatives, and at present there is little chance of it having any. The prints on the metal are usually made in bitumen, some operators using bichromated albumen, especially in dull weather; but this requires great skill, both in the preparation of the film free from dust, as well as in the subsequent rolling up with a sufficiently strong ink resist. Printing the ink image on prepared paper and subsequently transferring to metal is also practised, but this method requires great lithographic experience to get a good image. The metal used is generally zinc, but some firms use copper.

Line Blocks for Type Printing.

This branch of photo-mechanical work is nearly all done by the etching process, the swelled gelatine method being worked by one firm only, who, however, turn out splendid results. The wet collodion process is here paramount for making negatives, the silvered mirror being used to get the necessary reversal, one or two firms only adhering to the method of turning the plate in the dark slide. Stripping the film is very seldom practised. When a number of small images are to be put on one sheet of metal, separate exposures are made, the metal plate being re-sensitised for each print.

Line blocks are produced very cheaply, but there is a constant demand for them, hence they pay in spite of the low price. They are used by the square yard in halfpenny papers as well as in very high-class ones.

Photo-lithography in Line.

Photo-litho transfers are getting into very general use all over the country; firms who a few years ago would not hear of such a thing are now using large numbers of them; but there is one drawback in the difficulty in obtaining good transfers, so few operators know, or will be told, how important it is to keep the ink spare instead of thick, especially in fine work.

The best method of inking up these transfers is to use a glue roller charged with transfer ink thinned with turpentine, a method which I had the honour of first introducing, and as it is simple, easy, and efficient, some operators prefer to use the old and clumsy methods of rubbing over the ink with a sponge, or else ink up a stone, place the exposed print upon it and pull through the press; the sponge method yields heavy and uneven transfers; the inked stone gives rotten lines and dirty whites.

In chromo-lithography, photo-transfers are much used when different sizes of one subject are required; then one drawing or set of stones only are prepared; then from each stone a black pull is taken. This is photographed, put on the stone, and printed.

Photo-lithography in Half-tone.

This process is not very extensively practised, but where it is, very fine work is produced. The best work is done by transfer from a collographic plate, the necessary grain being obtained by using either ferrocyanide of potassium or calcium chloride, or both.

Collotype.

This process has been very extensively taken up within the last three years, but there are only about four firms who turn out really good work, simply because the process is starved in initial stage—viz., the negative. Money is lavished on machinery, &c., good wages are paid to plate-makers and printers, but anyone is considered capable of making a dry-plate negative. Now and again, by a fluke, a good collotype is turned out; but as for ninety per cent., it is stale, flat, and unprofitable.

This process is essentially a photographer's process, and only those who are capable of constantly making good negatives can ensure good collotype prints; the process is simplicity itself given a good negative, but not without.

Photogravure.

England was a short time back very backward with this process, simply because of the difficulty of getting men capable of producing the prints from the intaglio plates; now, thanks to the pluck and enterprise of firms like Annan & Swan (London), English photogravure prints hold their own in comparison with any.

Some firms use the Talbot-Klic process, in which the grain is obtained by dusting with finely-powdered resin, the resist being a carbon negative—*i.e.*, a pigmented gelatine print from a transparent positive, mounted upon the copper plate and developed thereon.

Other firms use the method of dusting over a gelatine image with a resin in fine powder, and when the image is dry obtain the grain by dissolving out the resin, and then obtain an intaglio plate by electrolysis.

Others again prepare gelatine films with plumbago, &c., of varying degress of coarseness, which, when exposed to light and developed, yield a granular-surfaced image, from which, by the electrotype process, a printing-plate can be obtained in copper or steel.

Taken altogether, England has no cause to be ashamed of her photo-mechanical work, and it does not require any great stretch of imagination to say that in the future this satisfaction will be maintained.—*Read at the World's Congress of Photographers.*

* * *

An American inventor has introduced a modified form of automatic photographic machine, which is said to have "caught on" there. The apparatus is worked by an assistant, who raises or depresses it to the required height. Chairs are provided for the accommodation of the sitters, and a portable background is placed behind so that the risk of being taken with the face of a total stranger peering over one's shoulder is practically done away with The time of exposure is about six seconds in a fair light, and the finished picture can be delivered in about forty-five seconds. Reproductions of photographs thus taken are given in a New York contemporary.

THE WIDE ANGLE CLUB.—IX.

A PAPER UPON EXHIBITIONS.

OWING to a rumour of "ructions," the last meeting was well attended by an expectant throng of members. Mr. Arch, the newly-appointed Hon. Sec., had offered a paper upon "Various Points connected with Exhibitions," which the Council had accepted. The Exhibition Committee (Mr. Honmention) was not represented at the meeting, having to attend its aunt's funeral. It was freely whispered that Mr. Honmention had taken great umbrage at what he termed "the cheek of a new official," as he considered that anything and everything connected with exhibitions ought to be left entirely to him. So with the expectation of the promised "doing up and mopping the floor with Arch" several extra members put in an appearance.

The Chairman was not expected till nine, so Mr. Brewer banged the table at the usual hour of eight.

After the routine business, the question-box was found to be pretty full, but the Chairman, upon reading them over, suggested that those upon matters connected with exhibitions should remain until after the paper was read. This being agreed to, only two remained.

"A statement appears in this week's *Squeaker* that if a plate be first immersed in water and then afterwards developed, no fixing is required."

Mr. Crediton said he did not like to be offensive, but the editor of that paper must be a bally idiot to allow such stuff to go in. Whether a plate was developed or not, how could it be safe to take it into the light before it was fixed in the tray? It would inevitably fall out.

Mr. Southend remarked that the editing of the present photographic periodicals was a disgrace. When he got the chance he would show folks how *he* could do it.

"In giving a lantern lecture, if the operator at the lantern made mistakes, what was the best course to pursue?"

Mr. Southend recommended a graduated code :—

1st. Mild and persuasive : "I don't think that slide is right."

2nd. Firm but kindly : "That slide is wrong."

3rd. Slight anger : "Do, please, be more careful."

4th. Wrathful : "If the lantern man will put the slide in right," &c.

5th. Sarcastic : "Shall I come and work the lantern for you?"

The next business was the paper by Mr. Arch, who began with the exhibitions organised by pre-historic races, and passed through those of the Egyptians, Greeks, and Romans, Paris, London, and Chicago, to those held in England. Upon those of more recent date he touched but lightly, owing to want of time. In the main, he considered that there were too many exhibitions; they all came at the same time, the judges were not selected with care, and there were too many medals. In conclusion, he hoped to lay before the Council a scheme for a very fine show in Bumbletown, which, if accepted, would prove what they could do, and make not only the Bumbletonians proud of their Club, but the rest of the photographic world envious of their success.

During the reading of the paper, Mr. Honmention managed to keep himself under control, but was upon his feet the moment it was done. "Gentlemen, this comes of putting things into the wrong hands. Mr. Arch is not on the Exhibition Committee at all, and I shall move that the wretched opinions expressed shall not go forth to the world as the voice of this Club. What does he mean by too many exhibitions, or too many medals? What does he know about the matter anyway? What do we care about the Egyptians and the Prehistorics? What——"

At this point the Mayor entered the room, and Mr. Honmention, who had been working himself up into a passion, subsided into his chair.

"My dear—ah—friends," began the Mayor, "though I have—ah—only heard the *end* (with a strong accent on the word) of Mr. Honmention's—ah—able speech, I venture to—ah—ask your attention for a few moments. I have just returned from London, where I visited the P.S.G.B. Exhibition, and if you will—ah—will lend me your ears—(cheers)—I will give you my valuable impressions. (Cheers.) It is a good show, but what I want to know is, where is the work of Bumbletown? By what disgraceful procedure has the work of our—ah—our clever artists been rejected? (Cheers.) I sent a view of my back garden—a lovely, soft negative, full of detail, breadth, atmosphere, and comprehension. Where is it? ('Shame.') Where is Mr. Honmention's study of a cow looking at her—ah—her tail? Where is Mr. Fordwell's magnificent hand-camera shots? Flung—ah—thrown on one side as rubbish. (Loud cries of 'Disgraceful,' 'Shame,' &c.) I'll tell you what it is my—ah—fellow-Bumbletonians, they were afraid of it. (Cheers.) Why didn't they chuck out those flat, wishy-washy smudges and blots, those flat, fogged prints, and let in the—ah—good Bumbletown work? Jealousy, my friends. (Cheers.) And all those wretched nude studies of boys by a foreigner, in such attitudes that their fathers—if they had any—wouldn't know them! (Laughter.) Fellow-citizens, I shall move an—ah—unprecedented step—viz., that we record a resolution, and adjourn the meeting to show our intense indignation."

Mr. Honmention said he had a lot to say about Mr. Arch's paper, but upon going to a show of hands it was resolved to adopt the President's suggestion.

It was thereupon duly proposed and carried :—"That this meeting do hereby forthwith adjourn as marking the Wide Angle Club's deep sense of wrong and injury and insult offered to two of their members by the Hanging Committee of the P.S.G.B. That this resolution be sent to all the photographic papers, with a note that should the P.S.G.B. see fit to apologise, the Club will unbend itself to mitigate their projected and disastrous opposition."

As the members parted, the hope was expressed that the P.S.G.B. would have the good sense to apologise, and would alter two of the medals, sending them to the President and Mr. Honmention respectively. And thus musing o'er the future they severally meandered homeward.

THE PHOTO-MECHANIC PRINT PROCEDURE TO THE YEAR 1893.

BY J. HUSNIK.

THE photographic deep-print or copper-plate print is represented through the methods which are known under the name "Heliogravure," and already stand on the highest grade of development. It is the same with the "Lichtdruck"; both the processes do not show much improvement since 1870, only in the "Heliogravure" the secret and well-guarded methods of Dujardin and Baldur, of Paris, have been brought to light by a Bohemian by the name of Karl Klic, of Vienna. The entire process consists of putting fine asphalt powder equally on a polished copper plate, to be heated, and to develop on the plate a pigment picture, which has come out through illumination under a positive; this is thereafter etched with a solution of chloride of iron. Goupil, in Paris, has practised for a long time a process which requires much retouching. He has added glass-powder to gelatine and prepared his own pigment papers, which he lighted (under negatives) and exposed on silver copper-plates, and electrotyped the dry relief. The same process has been cultivated by Schreiber, in Vienna, in 1873, only he took a grained skin of gelatine, which he put between the negative and the pigment paper; and very good half-tone plates are yet in the Imperial State Printing Establishment in Vienna. Dr. E. Albert, in Munich, produced lately a grained gelatine relief with the well-known "Runzelgrain" of the gelatine (Pretschmanier); the same process was practised in 1870, by Rodriguez and Leipold in Lisbon, but with no success. Obernetter, in Munich, has used a process for many years, which consists of a collodion picture out of iodine of silver, transferred on a copper plate. The silver will reduce itself and etch the copper.

There are now experiments made with a new deep-print process. A developed pigment relief in wet condition is powdered with the finest asphalt powder; after drying, the powder is removed, and it remains a grained gelatine relief, which is electrotyped.

The photo-mechanic process for printing presses has made great headway lately, and pen drawings have reached the highest stage of perfection. Half-tone originals must be laid out in lines first, and this is done with the aid of transparent Rasterplates or nets, which have been perfected of late.

The writer of this built a ruling-machine four years ago, and obtained faultless nets drawn on glass, which are to be glued or cemented between two glass plates, and which are perfect, and in use in Prague, by Husnik & Hausler. Loewy, in America, has the same cemented and perfect nets, and they are generally used. Meisenbach, in Munich, was the first man who practised this method with success; after him came Angerer & Goeschel, in Vienna, Goupil, in Paris, Husnik & Hausler, in Prague, and Riffahst, in Berlin. The writer of this has perfected the collotype, and samples are found in all public magazines. At present experiments are made to print three or more colours on the printing press; and particular merit is due to Dr. Vogel, in Berlin. His methods are exercised by Kurz, in America, and Buchsenschein, in Berlin. Up to date it is not yet perfect; there is need of the clear, green colour, which now holds too much red.

My son, Jaroslaw Husnik, practical chemist, has greatly improved the photographic three-colour print, and faultless pictures are the result, which the firm of Husnik & Hausler executes, and herewith sends samples for inspection; also the three clichés for the three ground colours, yellow, blue, and red, with impressions and other samples, have been mailed separately to your address.—Jacob Husnik, Imperial Professor and Member of the Art Institute of Husnik & Hausler, Prague.

Kgl. Weinberge, July, 1893.

James B. Bradwell, Chairman of the Committee of the World's Congress Auxiliary on a Congress of Photographers, Chicago, Ills., U.S.A.

Dear Sir,—We take liberty to notify you herewith that we have shipped to your address to-day an article by Prof. Husnik, prepared for the World's Congress of Photographers; also, separately, the necessary explanation, the gelatine reliefs, and the clichés for the three-colour print.

We mention that we have enclosed proofs of the gelatine reliefs which substitute the make-ready on the cylinder of the book-press. In relation to the three-colour print we will say that we are prepared to execute this process on a large scale, and are willing to sell to American studios, if desired.

In Europe, our process in three-colour print has met with great success, and we are busy filing orders for this reproduction. Our processes will, without doubt, very much interest the American Continent, and we would rejoice if you should mention it in the World's Congress.

We will also mention that this process consists of three photo-negatives, one for yellow, ono for blue, and one for red, transferred on zinc and etched. This is, as you will see, very simple; there is no need of extra help, and we believe it to be much superior to those of Mr. Kurz, of New York, of which the proofs did not satisfy us at all.

Our gelatine reliefs, as a substitute for the make-ready on the cylinder, which we mentioned in Prof. Husnik's article, are also in great demand, and would prove successful to American printing establishments, as the work can be done quickly and effectively.

It would be very interesting, indeed, if you would have those clichés of the three-colour print, which we have sent you, printed in Chicago, with the use of our gelatine reliefs, also enclosed; and we would recommend to print the yellow colour first and the red colour last. We have no doubt that this proof would be regarded with high consideration by the Congress.—Very respectfully,

Husnik & Hausler.

—*Read at the World's Congress of Photographers.*

* * *

M. Janssen, writing to M. Bischoffsheim from the summit of Mount Blanc, on September 12th, says that the Observatory has been fixed in its place, and all that now remains is to fit up the interior. It is hoped that observations will be commenced this autumn.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, OCTOBER 6, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
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If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
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ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. X.—In an Exhibition.

DOES it ever occur to some visitors to photographic exhibitions that they never see the pictures, however much they look at them? Another of those dreadful paradoxes that contain more than half a truth. The spectator only too often sees just what his mind is prepared to see, and no more. In a picture the artist's principal intention, probably, is to show his thought by photographic means, or the impression of the scene he has taken for his subject as it presents itself to him in its greatest beauty, all things being seen differently by different people according to their proclivities. Two classes get the most enjoyment out of a fine picture: the ignorant who do not care how it is done, but enjoy the agreeable sensation, and the trained artist who can trace the subtleties of thought and adaptation to means, and the power to handle nature, which all go to the production of a perfect work; and if there is a little something in it he does not quite understand, his admiration will be the greater. But his enjoyment of the execution will only begin where the ordinary A B C of photography leaves off. The scientist gets his enjoyment out of the picture in another way. He does not care about what the artist has to say, nor how he says it; he looks beyond the thought, and considers only the mechanical processes by which he supposes it is rendered visible. He must decide whether it is a pinhole or a slit or a rapid rectilinear; whether pyro really could produce that peculiar effect, or if that little light indicated the stain of hydroquinone. Another pulls a shutter of his own make out of his pocket, and explains to a friend that *that* would be quite as effective as the one used to take those wonderful diving figures. The diving figures in all their beauty are not thought of except that they afford a "lead up" for the amateur mechanic to give a dissertation on his hobby. That group of ladies looking at the large figure picture are not studying the grouping or chiaroscuro; they are only curious to learn, as they know the artist, if they can recognise any of his models. Those members of an out-door club are wondering how it is that some pictures which they have the grace to confess, are so much better than their own of the same localities taken at the same time, and decide that all the difference is between *f*/16 and *f*/32. The little but important difference in the selection of the foregrounds escapes their attention. Another is muttering to himself, "I too have used a pinhole, but my pictures don't look like that, and as there is no lens to blame it must be the developer." Another, with all the enthusiasm of a successful detective, is pointing out the joins which do not exist in what he supposes is a combination photograph. Another is calling this sort of thing "criminal," perhaps because he does not see how to practise it himself.

Let us be rude enough to listen to some of the conversation.

Artist. What a beautiful picture! The composition perfect, the feeling delightful. What a happy idea! We must recognise the brotherhood of photography when it produces such art as this.

First Photo. (*examining the picture closely*). It is an enlargement.

Second Photo. (*also smelling it*). I think it must be from an enlarged negative. This method is becoming very popular. I have not yet decided whether to use carbon or plate transparencies, so have not tried it. I should like to have a scientific opinion on the subject. I believe they have a way of examining the molecules with the spectroscope, and deciding which kind gives the sharpest pictures.

Third Photo. Scientific opinions are as numerous, cheap, and various as the pebbles on the shore, and about as useful to you. A practical man who never heard of molecules and atoms would give you the best advice.

First Photo. You can get very good enlargements in the ordinary way with Thompson's paper and amidol developer.

Second Photo. I prefer hydroquinone, with ten per cent. of eikonogen.

First Photo. Yes, that perhaps gives a better colour, if that is of any consequence, but I always use the latest discovery in developers to the exclusion of all others for the time. By this means you get to know more about it, and can join in discussion.

Second Photo. True. That is what I also live for; you can make more mark that way than any other if you can keep from feeling you are a bore. Did you ever hear of that old photographer who determined to make himself the best known man in photography, and decided that speaking on all subjects at all meetings was the way to do it? Surely it is an amiable weakness to like to be known, and so, humbly imitating him, it is my care to attend every meeting and give my opinion on all subjects. It must succeed in the end.

Artist. You are frankness itself. Shall we now proceed to your exhibit?

Second Photo. Oh, no! I don't exhibit. Few of us, to tell the truth, commit ourselves in that ridiculous manner. We don't give ourselves away. I am satisfied to let people suppose I know everything. Others try it on, but few succeed; simulation of knowledge is a gift of itself. This picture-making that some of them talk of is all nonsense. I have tried it myself, and, really, I could find nothing in it. Ah, here comes Mr. Blank, we can ask him if his photograph is an enlargement or direct. How do, Blank? Just resolve our doubt about your picture. Is it from an enlarged negative, or a simple bromide?

Blank. I exhibit that picture for what it is worth to whoever looks at it. To you it is perhaps a bromide. Do you happen to notice the composition or balance of light and shade?

Second Photo. No. What do you mean?

Blank. I thought not; to others, doubtless, it will look like a photograph taken direct, but I humbly hold a far-off hope that some will kindly see the picture, forgetting the means.

Artist. That is what I saw and called attention to, but our friends here started off to find your secret of beauty in the details of the process by which the picture was done. Not, I think, that they have discovered your method, whatever it is. Perhaps you will ease their minds.

Blank. Not I. For years I explained the mechanism of my pictures so completely that I fear I obscured the vital points, and people could only see my means, but neither my intention nor performance. They saw the grammar, but did not hear the speech. Now I say nothing except that my picture is produced by legitimate photographic means, and is not an example of any process. You may still see, more's the pity, the works of some really good photographers shown as advertisements of what can be done with certain makers' plates and the prepared papers of others, when probably the same results would be got by the use of any materials in the same hands; but some are now beginning to find that they must respect their work themselves if they would have it respected by others. It is not the material that puts the poetry into a picture. Giving all credit to process, the old saying should not be forgotten, "The best work of the world is not done with the best instruments." It pleases me now to hear the experts calling enlargements direct photographs, and direct photographs enlargements. This is constantly happening. It was all very well in the childhood of the art for photographers to help one another, but we are too far advanced now for it to be necessary. All the dodges are known, and are only means to an end, but you may tell all the dodges, and those you tell them to may make a great display of means without arriving at a good end, or at all near it. A good picture should be expected to teach a higher lesson than the application of the elementary processes of the art by which it is produced, and any artist will give hints to real students; but they avoid those who only want to experience a certain idle feeling of cleverness that they have found out how it is done, "don't you know."

Artist. Thank you for your little dissertation, with which I almost entirely agree; but to turn to another subject, don't you think that the exhibition suffers from the jumble of frames of all sorts?

First Photo. It is as it has always been.

Artist. But don't you think that a vast improvement would be made in the appearance of the room by some attention to this important subject? There is a great deal in appropriate framing. I won't go so far as the enthusiastic carver and gilder who said, "Any man may paint a picture, but the framing is the thing." There is a good deal of truth in this, however. Many a picture is made or marred by its frame. This is especially noticeable at photographic exhibitions at which there are no sumptuary laws against excess, and where the rules have only Oxford and oval frames on which to expend their severity.

Blank. It is not well to be too dictatorial in matters of taste, but for future exhibitions it should be possible to make suggestions for something like uniformity, such as that law of the Royal Academy which enacts that all pictures shall be framed in gold; pattern, within certain limits, being left to the individual taste of the exhibitor. The general effect of an exhibition would gain enormously if some regard to uniformity of framing was the rule. I notice many a good picture that the hangers have had, apparently, to put away in obscure corners, because they could not make them harmonise with the general effect in good places.

First Photo. Now I wish, Mr. Artist, before we part, you would explain to our benighted ignorance the difference that makes one picture good and another indifferent. The fact in extreme cases is, of course, obvious, but here are two pictures side by side of similar subjects. The one is a most excellent photograph of a beautiful fact. Yet, even I, can feel there is something wanting. The other seems to be more carelessly executed, but it has an indefinite charm that I feel, but cannot understand.

Artist. They are similar, but not the same. Ah, the difference! I confess that I cannot put it into words for you until you are much more advanced in art than you are at present, but I can give you two lines in which the poet shows you the effect of the difference:

"Oh, the little more, and how much it is!
And the little less, and what worlds away!"

THE PALL MALL EXHIBITION.

(*Continued from page* 620.)

HAVING last week noticed the "medalled" pictures, we propose now to go through the Exhibition in the order of the catalogue. No. 1, by the Autotype Company, from a negative by G. and R. Lavis (carbon enlargement), is unfortunate in the pose of the figure of the young girl with a fiddle in her hand. Nos. 6 to 9, by Col. J. Gale, are from beautiful little platinum pictures, of the type which we have learnt to expect from this leading worker. As Col. Gale is one of the judges his pictures are labelled "Not for competition." No. 6 is a particularly effective pastoral scene. No. 10, "The Postman" (platinum), by Robert Terras, is well grouped. No. 11, "F. Goodall, R.A." (platinum), by F. Donner, is an excellent out-of-doors portrait of this distinguished painter. No. 14, "Clouds Descending the Valley" (bromide enlargement), by Wm. England, is a very fine study of cloud. No. 15, "Mont Blanc by Moonlight" (bromide enlargement), by the President, Captain W. de W. Abney, a snow scene with mountain background, is noticeable for clear, delicate definition. No. 23, "Against the Tide" (bromide), by W. Dawes, shows good picture-like quality. No. 26, "Bonchurch Cliffs, Isle of Wight" (platinum), by Herbert Young, is as good a bit of photography as could be wished for, giving wonderful definition, with great depth of focus; altogether a particularly pretty picture. Nos. 29 and 33, "Buckenham Ferry" and "The Wherry," from negatives by Dr. Emerson, printed by the Autotype Company, seem unnecessarily large for the interest shown. No. 33 is not a pretty subject, but it gives a good idea of mist. No. 32, a platinum picture with two lines for title, by Lewis Cohen, is like a very good mezzotint engraving. No. 35, "Football, Blackheath *v.* Kensington, Stoddart kicking a Goal," is a spirited picture. No. 38, "Nine Interiors" (multiple-coated plate, gelatino-chloride paper), one of the very few studies of interiors exhibited; they appear to be excellent, but are hung too high for proper appreciation. No. 44, "White Lilies" (direct, untouched), by Henry Stevens, shows a group of flowers, very faithfully rendered, almost too much so, as the flowers appear as if they had been made of tin. No. 45, "A Bivouac" (platinum), by Lewis Cohen, a picture with much individuality about it—a man lighting a fire out in some backwoods, and another on horseback looking on, evening time. So far as one may judge by the darkness of the sky, a very good photograph and very interesting as a picture. No. 48, "On the Clyde," a fine platinum study by Stewart Smith. No. 49, "Down from the Hills" (extra rough, sepia platinum), is a very brilliant picture by R. B. Gay Wilkinson. No. 69, "D'Orta Market Women," three hand-camera pictures (platinum), by J. A. Sinclair, are very choice, showing marvellous definition, the one entitled "Going to Market" being perhaps the best. No. 70, by the same artist, "Bellagio," shows detail again most successfully treated. No. 74, "Half Tide" (sepia platinum), by J. M. C. Grove, if erring a little on the side of vagueness, is still a good piece of work, very like a water-colour drawing. Nos. 75, 76, 77, and 78, a frame of four figure pictures, by H. S. Mendelssohn. These are all good; and No. 75, "Mrs. Bonham and Children," is a delightful piece of portraiture, the action of the children and their pretty faces being happily caught. The artist is certainly to be highly complimented on this work, not only for its technical qualities, but for its Sir Joshua Reynolds-like grouping and expression; but we think that a bit of drapery, or something falling from the chair or the woman's figure, in the left-hand corner, would help the composition. No. 76, "Miss L. Wilson," is also a good picture, but slightly marred by the fogginess of the dress, more noticeable from the fact that the blurred part is on the same plane as the face, which is not foggy at all. No. 78, H.S.H. Princess Pless, an excellent portrait picture: but this again shows a want of some light object in the right-hand corner, which would prevent the figure from running diagonally across the picture. No. 80, "Nuwara Falls from the Ramboda Pass, Ceylon" (from negative by F. Bayley), carbon enlargement by the Autotype Company, seems a fine piece of work, but is so dark that its qualities have to be taken on credit. Above the last-named is No. 79, "Portrait" (carbon), by Mowll & Morrison, but it is unfortunately hung rather high. Nos. 82 and 83, two beautiful little pictures by J. M. C. Grove. No. 83 is a gem, just artistically vague enough. The same artist, in Nos. 92, 93, and 94, has three more pretty little pictures (sepia platinum), though No. 92 is a trifle cheap, and No. 94, "Winter's Evening on Lough Swilly," otherwise nearly perfect, is somewhat spoiled by the snow in the right-hand corner being out of tone and harmony with the rest of the composition. No. 96, "Group, Glasgow Art Club" (direct platinum), a good, straightforward, uncompromising photograph, no attempt at anything but to get an actual hard-and-fast representation of several distinguished artists, in more or less congenial occupations, sitting round a table in a tall room: in its way it is a very good piece of work. No. 97, "A Conquest" (platinum), by W. M. Warneuke, a country maid talking to a youth the while he lolls against a gate, is rather suggestive of being made up for the occasion, and not suggestive of out of doors. No. 102, "Now came still evening on, and twilight grey" (platinum), by E. B. Wain (thank you, Mr. Wain, for giving a short poetic quotation), a beautiful little picture of a somewhat ugly subject. To go back. No. 100, "Three Progressive Views of Manchester Ship Canal," by T. Birtles—these are very fine photographs of the topographical order, sharp and well defined as subjects of this nature should be. No. 107, "Study of Sheep" (cold bath platinum), by W. Thomas, shows us a very good pastoral picture. No. 112, "The Reedy Pool," very poetical study of trees and pool, though the sky, had it been a little lighter, would have helped this decidedly pleasing work. No. 111, "Quiet Waters," by E. B. Wain, for pure photographic qualities strikes us as being as good as anything in the Gallery. No. 113, "Kelp Gathering" (platinum), by W. M. Warneuke, a very good picture, and, to our taste, preferable to his larger work, No. 51, of somewhat a similar subject. It is nice in colour, and the atmospheric effect satisfactory; and though the figures rather suggest having been posed, and not found in a natural attitude, the whole picture is pleasant and comfortable to look upon. Nos. 114 and 118, "Lago Maggiore" and "Lago Lugano," six hand-camera pictures, in platinum, by J. A. Sinclair, like all this artist's direct pictures, full of delicate charm and wonderful definition; note particularly the "View from Stresa." No. 116, "You Stupid Boy" (platinum), by R. H. Lord, is a large picture of the would-be comic order; the expressions of the boys' faces, however, are fairly well caught. No. 117, "The Ghost Story" (platinum), by Robert Terras. The picture is distinctly better than its title; the listeners to the old lady's story don't seem a bit thrilled; in fact, appear to be more aware of the fact that they are being photographed than anything else. Still, it is a most excellent work, both the grouping and the light and shade are good, so the artist can hardly be blamed if his models would not put a little more true action and interest into their attitudes. We shall look forward to another composition from Mr. Terras. Nos 121 and 122, two carbon studies, by J. N. Hignett, the latter showing excellent out-of-door quality. No. 125, "A Sedgy River" (silver), by J. H. Avery, is very pretty and poetical, and immediately under it is No. 126, "The Old Rock," by F. P. Cembrano, jun., another landscape picture which, if wanting a little in detail and showing too much dark in the foreground, is still a very pleasing picture. Nos. 130 and 131, "With Breeze and Tide" and "Twilight" (cold bath platinum), by W. Thomas, both little gems, though, if there is any choice, we should select the former. Close by are two pictures of figure subjects, by Miss E. J. Farnsworth, which are marked as "Not for competition"; our politeness precludes us from more than merely mentioning this fact.

(*To be continued.*)

THE SWAN ELECTRIC ENGRAVING COMPANY.

THE new road which runs from Charing Cross to Oxford Street contains many handsome buildings, prominent among which is Northumbria House, the home of the Swan Electric Engraving Company. To these spacious premises we lately paid a visit, and were shown over the workshops by Mr. Cameron Swan, and Mr. Wm. H. Ward (late of Marcus Ward & Co.), two of the directors, and by Mr. F. E. Ives, of Philadelphia, who for some time past has been superintending here the production of printing blocks by a new process which he has elaborated and perfected. A glance round the reception room and offices suffices to show that no pains or expense have been spared in the decoration and general fittings of this large establishment, which is fitted throughout with the electric light—both the arc and incandescent systems being in evidence—and is heated in every part by hot water on Keith's system.

Ascending to the top floor we were first shown the studio and dark rooms devoted to the photogravure—or, we should say, the electro-gravure process. In the glass-room is a huge vertical easel which travels on rails in front of a gigantic camera, the purpose of which is to bear any picture or other work of art which is sent in to be reproduced as an electro-gravure. And that the first artists recognise the beauty and value of this method of reproduction is evidenced by the many oil paintings which we saw in another room—paintings by some of our first men which have adorned the walls of the Royal Academy and other exhibitions. We noticed in the studio that dark curtains could be drawn in front of the camera, in order to destroy those tiresome reflections which are so obtrusive when copying oil paintings. At one side of the studio is a dark room for moderate-sized pictures, while at the end is another for large work, which, when occasion requires, becomes itself a camera. Through a partition separating this room from the studio projects a big lens, and upon entering the room we find another travelling easel, with fittings, to which a sensitive plate of any size can be clamped. Exposure is made either by daylight or electric light, at pleasure, and the negative can then be detached from its support and immediately developed.

Passing by a small room used for retouching purposes, and giving a glance at the special platform on the roof used for printing frames—not an inch of space is wasted here—we are next shown a large box-like structure, ventilated in a special manner, for the drying of carbon tissue. Adjoining this are carbon developing tanks and apparatus in which the exposed tissue is squeegeed.

It must be here made clear that the Company are engaged in carbon printing generally, and not only in so far as it is required in their own work. Originally the invention of their senior partner, Mr. Joseph Wilson Swan, it enters into the electro-gravure production, and, to a less extent, into the block-making.

On the floor below we find ourselves in a large apartment which is devoted to the production of the negatives for the "Swan-type" blocks. Here are cameras of all sizes, the lens of each furnished with a mirror (silvered on surface); for the negatives produced must be reversed, and the mirror is the most convenient method of accomplishing that end. Each camera is complete with its vertical easel and its electric arc-light. This latter is of the Brockie-Pell type, modified so as to work with an alternating current. The switches for these lamps are on an adjoining wall, so that the workmen in attendance can turn them on and off as required. On this floor are dark rooms without number, and we watch with some interest the development of a negative, which, however, does not reveal the delicate network it has received in the camera until it is examined with a strong magnifier. One little dodge we noticed here which seemed of great utility. At the side of the developing sink was a basin-like vessel, fitted with a ground-glass screen across its mouth, and an electric light within it. Over this light screen the operator could hold his negative after development, so as to judge of its quality, and intensify it if necessary. The wet collodion process is used here exclusively.

Descending to the next floor we find it devoted to printing from the negatives on to a peculiarly sensitive film, on hard, rolled copper. And what ponderous things are these printing frames, with plate glass an inch in thickness to resist the pressure brought upon them by powerful screws at the back. Exposure to electric light follows, and the copper plate is ready for development, which eliminates the sensitising material not rendered insoluble by light action. Next, the copper plate is dried, and the preparation upon it is so stable that it will resist acid without any rolling up or similar treatment. The etching, therefore, immediately follows, and the photo-chemical part of the process is complete.

But to see the blocks made ready for the printer we must proceed to the basement, where there are numerous machines, whose names we know not, for cutting out, polishing, squaring, and other treatment of metal. Suffice it to say that here the metal plates are cut, squared, and attached to type-high wooden blocks, so as to fit them for the printing press.

A peculiarity of this department is that each machine is worked by its own electro-motor, and these receive their energy from a gas engine and dynamo. The electric power station of the Swan Electric Engraving Company is situated at a distance of some 200 yards from their main building, and it appears miraculous to the uninitiated in electrical matters to find that all the power used by the Company travels along two small wires in the form of electricity, and is re-converted into motive power in the main building, to drive the machinery, printing presses, &c.

Another branch of the work carried on at Northumbria House is the "steel-facing" of copper plates, which is an important part of the electro-gravure process—every plate being covered with an electro-deposit of steel, of extreme thinness, to obviate wear in printing. A special dynamo and electrical apparatus designed for the purpose performs this delicate operation.

We have not space to describe at length the various forms of printing presses which are at work in another department of this large business-house. The blocks and electro-gravure plates are not only made here, but they can also be printed from here if required, and the innumerable specimens handed to us prove that the work is of first-class character. Some persons are fond of saying that this class of work is done better abroad than it can be done at home. We feel that we are in a position to assert that no work could excel in beauty and printing qualities that which is now being executed by the Swan Electric Engraving Company.

CORRESPONDENCE.

WEST LONDON PHOTOGRAPHIC SOCIETY.

Sir,—I should be obliged if you would announce in your paper that the opening meeting of this Society takes place at the School of Arts and Crafts, Chiswick (near Turnham Green Station), on October 10th next, when intending new members will find it a good opportunity for sending in their names for election.—Yours faithfully,

W. S. Rogers, Hon. Sec.

13, Addison Road, Chiswick, Sept. 28th, 1893.

PALL MALL EXHIBITION.

"The Proud Turk."

Sir,—You are quite right in saying the above picture is "apparently printed on canvas." It is only apparently so printed; it is a transparency, with a backing of ribbed blotting paper. Any colour and texture can be given to the picture by changing the backing.—I am, your obedient servant,

J. S. Bergheim.

Camera Club, Sept. 30th, 1893.

HACKNEY PHOTOGRAPHIC SOCIETY.

Sir,—Will you please announce that, as we have unwittingly infringed one of the judges' recommendations (Conference recommendations), that particular class—lantern slides—will be judged by Mr. Debenham alone? Sir Charles Russell comes to open the Exhibition, and the awards will be distributed next day by Captain Abney, who comes at great inconvenience to himself to do so. Pictures will be exhibited by, among many others, Messrs. Thos. Fall, Elliott & Son, Gottlieb, Dresser, Brooker, and Mrs. Barnes-Ward, and the trade will be represented by Messrs. Marion, Watson, Wray, Powell, Platt & Witte, Fuerst Bros., Doublet, Rawlings, Morris, and Hannam.

Re Central Photo. Club.—Opens to-day, Monday, October 2nd. Unpaid subscriptions should be sent in at once. Next Friday, the "A.P." slides of this year will be shown, for the first time, by Mr. E. J. Wall. Friday, 13th, Smoking Concert, Mr. Traill Taylor in the chair; musical members requested to bring up their music.—Yours truly,

October 2nd, 1893. W. Fenton Jones.

APPARATUS AT PALL MALL.

Among the apparatus at the Pall Mall Exhibition which is just now attracting deserved attention is the extremely ingenious lantern known as Matthews' Portable Lantern, which is shown by Messrs. Holmes & Watson, of Daubury Street, Islington. A lantern which weighs only ten pounds, and fits into a case measuring only 13 by 6 inches, would seem to meet the wants of the most exacting worker. We have not had an opportunity of seeing the lantern in action, but there is nothing in its construction which can in any way militate against its efficient performance. In the annexed figure it is shown packed away in its case, and it will be noticed that, instead of being built upon a baseboard, the objective lens, the condenser, and, indeed, all the parts, slide upon two parallel bars. The condenser, instead of being placed in the usual rigid ring, is firmly held by a brass band provided with a tightening screw. The instrument, besides being ingeniously designed, is, apparently, very well made, while its price compares favourably with lanterns of the older pattern.

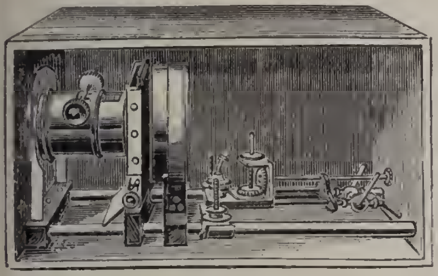

Fig. 1.

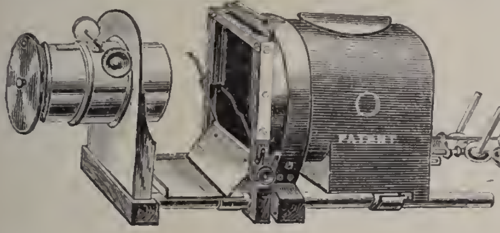

Fig. 2.

The "Unilux" biunial lantern, exhibited by Messrs. Archer & Sons, is a curiosity in its way, and reminds one somewhat of the Keevil lantern which was introduced about fifteen years back. This instrument, it will perhaps be remembered, was fitted with two nozzles, one pointing direct to the sheet, and containing the usual form of objective lens, the other projecting from the side of the lantern box, its beams being turned in the required direction by means of a prism. In Messrs. Archers' lantern, the two tubes carrying the lenses project from either side of the lantern box, and are in line with one another, their rays being turned in the required direction by means of mirrors. As its name implies, the object of this arrangement is to make one lime cylinder do for two optical systems. But, in reality, there is no economy in this, for two jets are employed, one on either side of the lime cylinder, and we fancy that the lime would, under such circumstances, last only half the usual time.

Messrs. Steward are not exhibiting at Pall Mall, but we may here refer to two lanterns which they have recently introduced. The first, shown in Fig. 3, is a useful form of instrument, with a strongly-made mahogany body. It is furnished with the new anti-glare jet (Barton's patent), which has a shield at its back preventing all escape of light in that direction. Besides this appliance, the jet has numerous valuable points which should be examined by all interested in lantern matters.

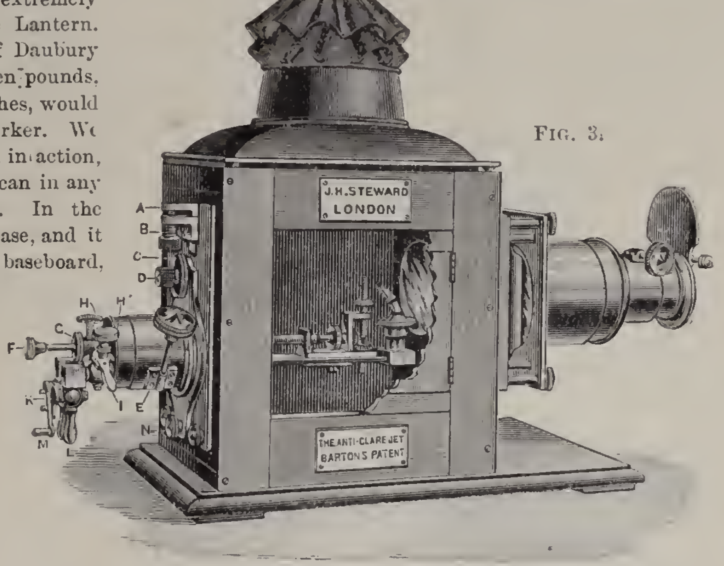

Fig. 3.

Science teachers will naturally be more interested in the projection lantern which Messrs. Steward have introduced for their especial use. This instrument can be used with oil lamp, lime jet, or electric light, and its various parts can be well understood on reference to Fig. 4. The condenser is of triple form, and its elements can be removed and exchanged so as to serve with objectives of different foci. It will be noticed that the lantern has a simple form of vertical attachment, and that there is an adjustable table upon which electrical and other experiments can be performed. The bellows-body in front is entirely removable, and the instrument can be modified and altered in half a dozen ways to meet different requirements.

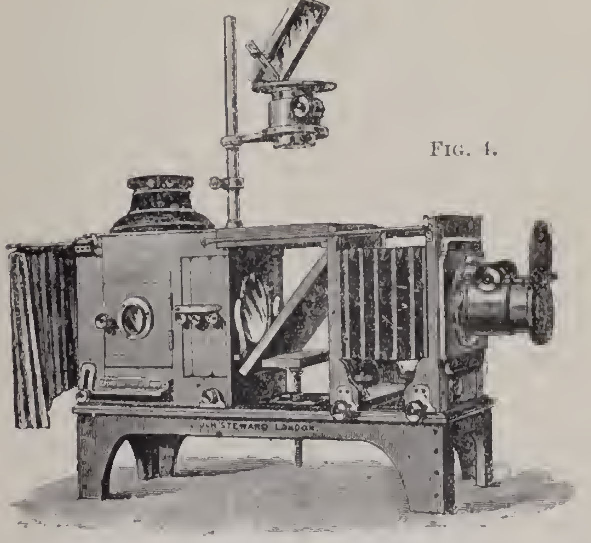

Fig. 4.

We have more than once called attention to the excellent snapshots taken with Messrs. Fallowfield's hand cameras. One of the most recent patterns introduced by this firm, called the "Premier" (see Fig. 5), is quite a marvel of ingenuity, and possesses the great advantage of all adjustments being made at the top of the apparatus. And, although this is the case, the instrument is quite unobtrusive in appearance. The lens is Wray's, of 5½ inches focus, and its four stops can be interchanged from the outside of the instrument, and the shutter is provided with Newman's pneumatic regulator. It will thus be seen that the camera combines the work of at least three firms. The changing arrangement is that of Newman & Guardia, each changing-box, which can be readily attached, holding twelve plates or twenty-four films. The focussing arrangements are singularly perfect, and two finders are provided.

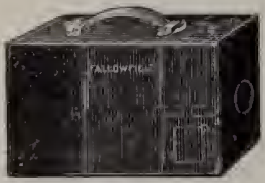

Fig. 5.

The "Holborn" walking stick tripod has been introduced by Messrs. Houghton & Son, and its general form will be seen by reference to Fig. 6. This new form of stand is extremely light and portable, while at the same time it is perfectly rigid. When folded up it forms a veritable walking stick, and one which is recommended to the hand-camera man, who often finds himself in want of a support for his camera when making a time exposure—as in the case of an interior view, for instance. But this stand is quite strong enough and rigid enough to carry a half-plate instrument, and it can be made to fit on to one provided with a turn-table. It will thus be seen that the "Holborn" is a useful thing, and visitors to Pall Mall Exhibition should not forget to examine it.

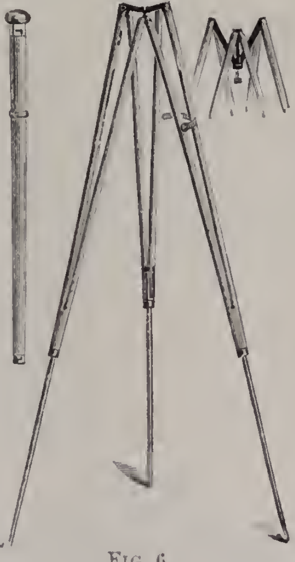

Fig. 6.

* * *

Antidote to Hydrocyanic Acid.—Since hydrocyanic acid is oxidised to oxamide by hydrogen peroxide, experiments were made by P. Krohl to see if the latter substance could be employed as an antidote in the case of hydrocyanic acid poisoning. These experiments are reported as successful, the acid, in larger quantity than the fatal dose, having been administered to dogs and cats, and its effects stayed by means of hydrogen peroxide. The experiment could be made daily for weeks together without permanently injuring the animal.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

September 28th.—Mr. T. Bolas in the Chair.

A question from the box read :—"How can good illumination be obtained in an interior without daylight, at the same time avoiding the enormous amount of dust resulting from the usual flash-lamp? Is there a lamp free from this defect? The stop would be $f/32$ to $f/45$; so the exposure would be a long one."

Mr. W. E. Debenham described Schirm's contrivance for condensing the magnesium fumes. It was, however, necessary that there should be some height above the burning magnesium for the vertical tube.

Mr. A. Haddon read a paper on the preparation of enamel plaques as bases for burnt-in photographs, and illustrated it by performing the operations, except the actual firing. He also showed examples of the plaques in the various stages of preparation and firing. He showed first the commercial enamel powder, which he treated with nitric acid to remove and decompose any matters which would interfere with the perfection of the result. He then showed copper foil, which was of the thickness of 4-1000ths of an inch for the smallest size, and of about three times that thickness for such a size as the carte-de-visite. The copper he annealed by heating to redness in a gas flame. When cooled, he cleaned it with powdered flagstone, and then it was washed and dried. A shape or template for cutting the plaque is made of brass, and has the edge bevelled. The plate is cut slightly larger than the template, so that the edge may be turned up round its margin with a burnisher. If the raised edge is higher in one part than another, it is, after removal from the template, filed down in the high parts. This rim or border is to prevent the enamel from running off the plate while in a fused condition. The plaque is now laid face downwards in a cavity turned in a block of wood, and pressed with the burnisher into the required curve. The enamel powder, which, as was mentioned, had been treated with nitric acid, was washed in several changes of water, and then stirred in water, and after a few seconds the upper portion was poured off. The dense powder was treated several times in this way, and the surface liquid poured into one vessel, from which in time a fine powder separated. The water being eventually poured off, there was left a fine pasty mass, which was used for the back of the plaques, whilst the coarser deposit, from which the water had also been poured off, was preferred for the front.

The fine enamel is spread on the back of the plaque with a hog-hair brush, and, if necessary, evened with the finger. It is next pressed with fine blotting-paper, and the plaque is then turned over and coated in the front in a similar way. A tap or two on the block will sometimes suffice to make the coating more even. After blotting off, the plaque is smoothed with a spatula, and this process is repeated if necessary when nearly dry. The drying may be finished in a hot drying-cupboard. If the surface is now found to be uneven, it is gone over with powdered flagstone or a piece of wood.

The firing is accomplished in a muffle furnace. The plaque is laid upon pieces of refractory clay, or earthenware, covered with kaolin to prevent adhesion. It is advantageous to paint the inside of the roof of the muffle with red lead. This forms a sort of soft glaze, which at the heat of the furnace will soften sufficiently to cause particles to adhere to it that might otherwise fall upon the plaque. The plaque is introduced to the muffle gradually. When fusing, the enamel first shows granulations which give place to an egg-shell surface, and finally to one quite smooth. This may take place in from one to two minutes, when the plaque is gradually withdrawn. If fired too long, a copper compound may come through, and show as a green surface stain. A steel hook may be useful for shifting the position of the plaque in the case of unequal firing.

If the plaque should have irregularities on the surface, any prominences may be rubbed down with flagstone powder, followed by pumice powder, and any inequalities filled in with fine enamel powder: after which, the plaque must be dried and fired again. Black specks may be scraped or ground away, and the places covered with enamel before the second firing; but a pointed tool must not be used for digging out specks, as the copper would be indented thereby. A final pickling in a 20 per cent. solution of sulphuric acid is used to clean the edges of the copper, after which the plaque is thoroughly washed and stored for use.

Mr. J. S. Teape had been favoured with a lesson from Mr. Haddon (which, however, was less complete than that now given to the Society) about ten days since, and he now showed some plaques which he had made, some of which were pronounced to be very good.

Mr. H. Snowden Ward said that enamelling was very popular in America, where in Chicago alone it was practised by twenty thousand amateurs. He did not refer to photographic, but to hand-painted enamels.

The Chairman, in thanking Mr. Haddon for his demonstration, referred to the utility of having the subject so practically and completely dealt with.

Croydon Camera Club.

(56, George Street.)

October 4th.—Opening of winter session. "Photographic Novelties," by the President.

October 18th.—Lantern night. Exhibition of Mathew's hand lantern.

November 1st.—"Various Methods of Making Lantern Slides," illustrated with slides on the screen, by J. H. Gear.

November 15th.—"National Prize Slides."

November 29th.—"Modern Developers," by Mr. Leblanc.

Meetings begin at eight. Members should bring examples of work. Council meetings, October 11th and 25th, and November 8th and 22nd. Tickets for the Pall Mall Exhibition are now obtainable of the Hon. Secretary at half price.

Hackney Photographic Society.

Ordinary Meeting, September 26th.—Mr. Puttock presiding.

Members' work was shown by Mr. Bently, and asked members' opinions as regards exposures. These seemed fairly correct: but pictures could be greatly improved by better lighting and a little fuller development.—Question was asked whether any member had had any experience with toning nikko paper with hypo and alum. Mr. Smith said he had used the bath and found it much easier to work after a few prints had been toned. Mr. Roberts had used it for an hour and a half, and found no difference in tone.—Mr. Magnus showed a print with a red stain, and asked for a reason. Mr. Beckett, jun., said that its appearance seemed to be due to contamination with other chemicals.

Mr. Beckett then gave a paper upon "Bromide Enlargement by Artificial Light," which was appreciated very much by the members. He dealt with the various lenses, light, &c., which might be used in the process, and described the whole procedure in a very lucid manner. With regard to negatives, which were very important to bring about good results, he advocated a negative of medium density with a slightly yellow stain as producing good results; thin negatives gave fair results, whilst ghosts were useless.

A demonstration was given by Mr. Beckett, jun., in which amidol was the developer, and some splendid results were obtained. There were numerous advantages in favour of enlargements, amongst them being alteration of character of prints, which was sometimes needed, and a larger picture showing to more advantage than a small print. A vote of thanks to lecturer and demonstrator brought the evening to a close.

Ashton-under-Lyne Photographic Society.

Winter Session, 1893-4.

October 4th and 5th.—Exhibition of stereoscopic views, by Messrs. Dr. Hamilton, Thomas Glazebrook, Samuel Woolley, and Robert T. Marsland.

October 11th.—Demonstration on lantern-slide making, by Mr. J. T. Lees. Members are requested to bring negatives in printing frames. Chairman: Dr. Hamilton.

October 18th and 19th.—Instructions will be given to beginners in lantern-slide making, in the dark room, by several members.

October 25th.—Lantern exhibition of members' slides. Each member to be limited to twenty slides. Chairman: Mr. William Greenwood. Delineator: Mr. Joseph Hutchinson.

The Committee have arranged for a lantern-slide competition for all members of the Society (except those in the six selected for the N.L.S competition); prizes will be given for the best sets of four slides each, according to the number of members competing. The slides to be sent in to the Secretary, at the Rooms, on or before December 11th.

Members changing their addresses will please notify the same to the Secretary as early as possible.

Northern Photographic and Scientific Association.

Ordinary Meeting, Thursday, September 28th, at 8 p.m.—

The President (Mr. Robins) in the Chair.

The re-adjustment of certain offices was arranged—namely, that Mr. Beagley officiate as Vice-President, Mr. Coghill as Secretary, and Mr. Murrow as Treasurer; instead of Mr. Coghill, Vice-President, Mr. Murrow, Secretary, and Mr. Beagley, Treasurer.

Mr. Coghill then delivered a lecture on "Lantern Slides by the Wet Collodion Process," and was assisted in the practical part by Mr. Simmons.

At the close of the proceedings, the Chairman said he was authorised to state that those members who wished to co-operate for the purpose of purchasing chemicals, &c., at a low rate and of uniform quality, could send in their names at once. He also reminded the meeting that a beginners' class was about to start, and those who wished to belong to it were requested to send in their names as soon as possible. The address of the new Secretary, Mr. Coghill, is 252, Wightman Road, Hornsey, N.

Liverpool Amateur Photographic Association.

The ordinary monthly meeting of this Association took place on Thursday evening, September 28th, in the Club Rooms, Eberle Street, under the presidency of Mr. Paul Lange.

The business included the election of four new members, Messrs. C. A. Rawcliffe, E. C. Lowe, John H. Burns, and R. F. Soper.

The event of the evening was a lantern lecture by Mr. Joseph Earp, "A Holiday in Normandy," illustrated by 160 slides from negatives taken by the lecturer and Mr. J. W. Swinden, both members of the Association. The excellence of the slides and the really original description, enlivened by flashes of quaint humour, altogether made a most enjoyable evening, which was highly appreciated by a very large gathering of members.

Bath Photographic Society.

The last of the summer outings took place on Wednesday last to Claverton. The sun shone forth in all its splendour for an hour or so after the start was made and some excellent pictures were secured. But those who did not avail themselves of the first opportunity soon found a change was taking place, and rain fell heavily; therefore, the further progress through Warleigh had to be abandoned. For the information of tourist photographers it may be mentioned that the avenue from the top of North Road, entrance gate and lodge at the Manor, Claverton Church, the terrace and steps and the old cottages, were among the subjects photographed.

At the first indoor meeting of the winter session, October 25th, a discussion will take place on the most suitable method of mounting and framing photographs.

Newcastle-on-Tyne and Northern Counties Photographic Association.

Ordinary monthly meeting. Tuesday, October 10th, 1893.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

17,685. Joseph Thacker Clarke, 3, College Terrace, Harrow, "Improvements in or relating to Photographic Shutters."—*September 20th*, 1893.

17,702. Ernest Bishop, 23, Southampton Buildings, Chancery Lane, London. "Improvements in Photographic Camera Stands."—*September 20th*, 1893.

17,875. Charles Haesler and Charles Eustace Haesler, 13, Cherry Street, Birmingham, "Improvements in Photographic Shutter Mechanism."—*September 23rd*, 1893.

Specification Published.

19,251. *October 26th*, 1892.—"Cameras." E. H. Micklewood, 5, St. Michael's Terrace, Plymouth.

Relates to a means of exposing sensitive plates so as to give a due ratio of exposure to all parts, and relates to improvements on Patent No. 9,042 of 1891.

The opening in the shutter which by passing vertically across the front of the dark chamber affects the exposure, moves at a uniform speed, the actuating mechanism being so connected with an iris diaphragm on the lens that the several parts of the sensitive surface receive the desired variation of exposure by the expansion or contraction of the diaphragmatic opening. This opening is so controlled by suitable mechanism that its motion across the exposing aperture is one of uniformly accelerated or retarded speed according as its passage is in upward or downward direction, or a brake may be provided coming into action during the slow part of the motion. The slot in the shutter may pass in front of the opening of the chamber in a horizontal direction at a uniform speed, and the graduation of exposure may be attained by having a slot of a V shape, whereby the wider part exposes the foreground and the narrower part the sky.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert, Haddan & Co.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

W. P. (Burton-on-Trent). — There are several books on Photo-micrography, the names and prices of which you can obtain from any good bookseller, who will refer you to his catalogue of current literature. It is, perhaps, better that you should consult a work of this kind than be dependent upon the necessarily short answers we can make to your questions in this column. We may, however, remark that the microscope objective takes the place of the ordinary camera lens, and that photo-micrographs are taken both with and without the eyepiece attached to the tube of the microscope.

Tourist.—The plan which we have always adopted for packing exposed plates is to place them face to face with films touching. Between every couple is then placed a piece of tissue paper, accurately cut to size, and every six pairs so provided for are then wrapped in red paper and packed in the original plate box. This box is finally wrapped in brown paper, sealed up, and labelled. Plates so packed and carried with clothes in a portmanteau or box will travel without risk of breakage.

J. J. C.—We refer you to a paper by Mrs. Main, which recently appeared in our columns, which you seem to have overlooked.

Gasman.—To calculate by means of a pressure gauge the contents of your 60 ft. oxygen cylinder is a very simple matter, and one which is almost self-evident. At its initial pressure of 120 atmospheres it contains 60 ft. of gas, and this proportion holds good whatever be the amount of gas left in the cylinder. By halving the atmospheres you obtain the contents in feet.

Janus.—You can obtain directions for making carbon tissue in the text-books, notably Abney's. But it is sheer waste of time and labour for you to attempt to make it when it can be purchased of good quality in large or small quantities. The Autotype Company, or Messrs. Elliott, of Barnet, will supply what you want.

A. B. (Shoreham).—Your mistake in using washing soda in place of hypo, although you afterwards rectified it, is quite enough to account for the dirty appearance of the negatives. Try the effect of Edwards' clearing solution which is made thus :—

Alum	½ oz.
Citric acid	½ ,,
Iron sulphate	1½ ,,
Water	½ pint.

J. O. K.—The cameras referred to have certainly a distinct likeness, and we can only suppose that the design is for some reason not the subject of a patent specification. Probably the first maker failed to protect the idea, and that imitators sprang up as as a natural result. There are always persons ready to take advantage of any loophole of this kind, and the practice is by no means confined to photographic apparatus.

Clerk.—Practically any lens can be used for copying purposes, but some are far more convenient than others. Your old long-focus triplet fails because the extension of your camera is insufficient. We should recommend you to employ a short-focus portable symmetrical lens. This will allow you to get close to your copy and to use your ordinary camera.

PATENT OFFICE LIBRARY

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1832. OCTOBER 13, 1893.

NOTES.

We may remind those of our readers who are of a charitable disposition that the Photographic Benevolent Association will benefit by the special lantern display which will take place, at the Pall Mall Exhibition, on Friday evening, November 10th. The tickets are only sixpence each, and they can be obtained of the Hon. Sec., Mr. H. Snowden Ward, at the Memorial Hall, E.C.

Those who have had an opportunity of examining Mr. Burrows' medal pictures of the interior of the Dolcoath Mine will be interested in knowing that he has a work in the press, entitled "'Mongst Mines and Miners," which will be lavishly illustrated by similar pictures of underground workings and workers. We trust, for the sake of the success of this book, that the coal strike will quickly terminate. The public will be far more disposed to interest themselves in mines and miners when they once more can get fuel at reasonable rates.

The confusion of ideas which still prevails among outsiders with regard to photographic processes is well illustrated by a remark addressed to us the other day by a gentleman who had been deploring the present price of fuel. "By the way," said he, "how far does this coal strike affect what you call the *Carbon* method of taking pictures?"

The photographic swindler is yet on the warpath, but his methods are not new. Witness the following, which we clip from a Staffordshire paper:—"Thomas Hancock, of the Talbot Inn, Burslem, said the defendants came on the 5th of July to his house in company with a young woman, and asked to be allowed to photograph his house. He gave them permission, with the result that they afterwards showed him a proof, and he ordered half-a-dozen copies of the photograph, paying them 10s. in advance for these. They gave him a receipt and told him the copies would be forwarded by the firm in Leeds, as they had to go on to take other places. Witness never received the copies nor saw the defendants again."

Indian photographers have at last a printing paper which does not seem to be impaired by long keeping in that trying climate. Writing to the *Journal* of the Photographic Society of India, September issue, Mr. Alexander Thomson says:—"I have found my platinotype paper, much to my surprise, in as good condition as when it arrived in April last. Its *keeping* quality has been pretty well tested, as it was in Darjeeling for seven weeks, and has come through nearly two months of the rains in Calcutta."

We are requested to remind our readers that the Hackney Photographic Society's Exhibition takes place on the 17th, 18th, and 19th inst. at the Morley Hall, Triangle, Hackney.

Amateur photographers on shipboard have been often obliged to wash their negatives in sea water, and there is no risk involved in doing so, provided that a rinse in fresh water closes the operation. The action of sea air laden with particles of salt, which insinuate themselves into double-backs and other receptacles for plates, has, on the other hand, a distinctly injurious effect, which will often show itself in the form of spots.

A yachting correspondent of the *Scientific American* describes a weighted grooved box which he employs for washing the hypo from his plates. This washing box he attaches by a line to his yacht as she lies at anchor. He writes:—"The box is a simple affair, loaded with lead on the bottom, outside, so that its top is level with the water. Half-inch holes are bored through the sides, with wire netting nailed over them to keep out eel grass and other floating matter which might damage the film. The plate lies on the bottom of the box, secured in place by buttons that come about an eighth of an inch over the edge. After this sea bath I rinse out the salt with three changes of water in a tray. I do not advise an experiment with which I began—towing the box while under way; as the film was found at the rear end of the box in a state of pulp."

Knowledge of the action of certain chemicals, which a slight acquaintance with photography entails, although valuable as an acquisition, will sometimes lead to undesirable results. We may certainly attribute to the indirect influence of amateur photography a most reprehensible practical joke which was played recently at the expense of the congregation at Trieste Cathedral on the occasion of the celebration of the birthday of the Emperor Francis Joseph. Some nitrate of silver crystals were introduced into the receptacles for holy water, with an effect upon the fingers and faces of the faithful which can be better imagined than described.

Indolent amateurs who find the exertion of fixing the camera and making the exposure satisfies their photographic aspirations, and are quite contented to allow a professional do the "messy" work of the dark room and the printing, will, perhaps, be interested in learning that the Princess of Wales, Princess Louise, and Princess Henry of Battenberg, who are enthusiastic photographers, not only develop their own negatives, but do also the printing and mounting. Each lady has her own tastes in the selection of subjects. Princess Louise has a fancy for photographing children, the Princess of Wales has a collection of four-footed pets, and the Princess Henry of Battenberg indulges in snap-shots.

Photography is rapidly overwhelming astronomers with material. In regard to the discovery of asteroids this is especially the case. Before the camera was used the average discovery was about ten per annum. In 1892 twenty-seven were brought to light by photography, and two only by the old method of observation. The rate of increase this year is now more marked, for between January 1st and April 15th two observers, M. Wolf, of Heidelberg, and M. Charlois, of Nice, picked up twenty-five. These asteroids, says Professor C. A. Young, in *Inter-Ocean*, are now becoming so numerous, that it may be necessary to select a limited number which present special points of interest, and confine their attention to them alone.

Architects and architectural students are setting their houses in order—that is to say, they are making efforts to revive the A. A. Camera Club. This Club, composed of members of the Architectural Association, it appears, has been lying dormant for a long time; but, upon the editor of *A. A. Notes*, the organ of the Association, appealing for contributions towards establishing a collection of large mounted photographs, it was suggested by a correspondent that the Club should be resuscitated, and a meeting for the purpose was held this week. The Club should be a success if it be true, as the *A. A. Notes* puts it, that "our camera-bearers should, and do, know *what* to photograph." If the architectural photographers have got thus far, they have not very much to learn.

The remarkable decision arrived at some time ago by a Brussels bench of judges, that photography was not an art, and that consequently a photographer could not claim the rights of authorship, is still being warmly discussed on the Continent. From an exhaustive paper on the subject by M. M. A. Lacombte, a Belgian barrister, we gather that the judges misconceived the law, and placed a construction upon it never intended to be conveyed. It seems that in the law of 1886, which conveys author's rights upon the designer of a work of art, an enumeration of the various branches of art was purposely left out, for fear that the list might be incomplete, and thus do injustice by some grievous omission. The judges, however, who were not aware of this intention, took upon themselves to decide what was and what was not art, and so came to the conclusion that "the art of design only comprises painting, sculpture, architecture, and engraving." The judgment is all the more curious because there were already in existence conventions between Belgium and France and Belgium and Spain, in which the rights of photographers were recognised.

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To Clean Picture and Window Glass.—The following will be found an excellent glass-cleaning medium:—

Soft water	1 part.
Powdered pumice stone	1 oz.
Prepared chalk or whiting	1½ oz.
Liquor ammonia	½ oz.

Apply with a piece of chamois skin, then polish with a clean rag or soft paper. It will make the dirt fly.

Cleansing and Photographing Old Oil Paintings.—A writer in the *American Journal of Photography*, who has had experience in copying oil paintings, gives the following as his mode of cleaning oil paintings previous to their being photographed:—After dusting, wash the painting by a sponge and rain water, and then sponge over the surface the following: The white of two eggs, beaten up and cleared, a tablespoonful of glycerine, and half a litre of water. The object of adding the glycerine is to prevent the albumen from drying in spots, which would appear dull, and prove of injury to the reproduction.

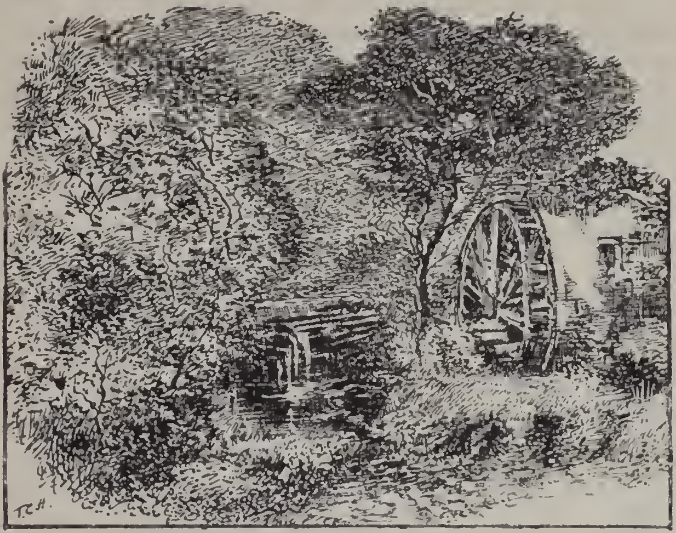
WHITBY.

BY ANDREW PRINGLE.

A SMALL river, meandering in many a graceful curve down a beautifully wooded valley, dotted with picturesque old-world hamlets: a tidal stream ending in a small but secure harbour, and emptying its waters into the German Ocean—such is the Yorkshire Esk. A collection of red-brick houses with brighter red-tiled roofs, "stuck down" without apparent consideration of order or of each other, on each side of the harbour on the steep slopes of the deep valley through which the river flows—such is the town of Whitby. On the left bank of the river, close to the harbour, the houses are irregular and intersected by lanes, alleys, or "closes" as they would be called in Scotland, laid down on no plan that can be discovered. Here is one house, partly on a make-shift foundation, partly clinging to the rocky face of the cliff; here is another somewhere near, but with no geometrical or architectural relation to the first house; the problem is to find access to the first house through or round the second. The solution is, make a passage through, or a flagged or paved lane, round the second. Higher on this, the West Cliff, are more modern and more pretentions houses, fitted for the monied tourist in search of ozone; and very good are some of these West Cliff houses, and boarding-houses, and hotels. Whitby is not a cheap or common seaside place; the regular 'Arry is not in his element here. No niggers, no Ramsgate or Margate abominations at Whitby.

WHITBY (EASTERN SHORE).

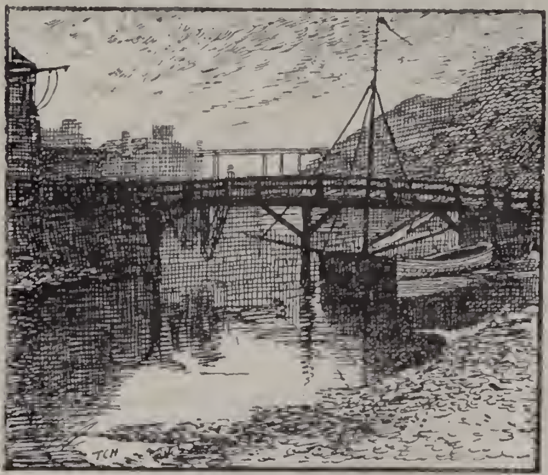
On the aristocratic West Cliff there is a railed-in enclosure containing a "Saloon," where a band plays daily, and where operatic and dramatic entertainments are given, but the price of entrance is more than 'Arry cares to deduct from his entertainment at other kinds of "saloons." From this cliff we get grand views of the coast, which is rocky and precipitous, and, on account of the bend of the land, we can see the sun rise and set though we are on the East Coast of Britain. From this cliff, too, looking across the harbour, we get a fine view of the East Cliff, the more ancient and irregular part of the town, the height crowned by the imposing ruins of the Abbey of St. Hilda, which stand out clear-cut against the sky. Lower by a little on the steep East Cliff is the plain, square-built parish church, apparently about 700 years old, by the side of which passes a twisting stair leading to or from the lower part of the old town on the east side of the harbour. If the older part of the western town is irregular, the eastern part is much more so. The general tendency of the "streets" is along the bank of the river, but every few yards the main street is opened into by some queer passage leading to some dwelling glued to the face of the cliff. Shops may have a frontage to a street or lane, but everybody in Whitby town lives up an alley. As mere studies of lines these "closes" and street corners cannot be surpassed; in some Belgian and Northern French towns, as well as some Italian villages, we have seen the irregularity comparable, but never superior to that of some parts of Whitby. Briefly, the view from the West Cliff of the opposite side of the harbour in certain lights—the harbour with two old piers, the dull red houses with bright red roofs, the winding flagged path



THE OLD RIGG MILL.

up the opposing cliff, the old church and burial-ground, and the Abbey ruins capping all, with the headland to the left running precipitously down to the sea-shore—presents a spectacle almost unique and never to be forgotten.

The harbour is, perhaps, of no great account as a harbour, though any craft inside it is perfectly safe from whatever tempest may rage outside, but, as a field for the artist, it is almost sublime, so picturesque are the groupings of boat, pier, and figure, and the surroudings of nature and architecture. Whitby is essentially a lazy place; years ago it was a busy town, busy with fishing and other industries; now everyone is hard at work doing nothing, or helping his neighbour in that arduous task. We may see, at almost any hour, half-a-mile of fisher-dressed men leaning over the harbour rail gazing into the water. But it must be owned that at this season, at least, "Satan finds" very little apparent "mischief for idle hands to do." It is doubtful if any other town can show such a record of public-houses—in some parts a guess may be hazarded that 10 per cent. of the houses are "public," and, in several cases, two such houses adjoin each other—yet a man affected by potations is not to be seen. These men fish to a certain extent, and take out tourists to a certain extent; they go, in their own parlance, "pleasuring," or "salmoning," or possibly, but cacophonally, "herringing." But do what they may they are never excited. The only occasion on which we heard a man of this district raise his voice beyond ordinary conversational pitch was this wise:—At Ruswarp, one station up the Esk, there is a boat station for "pleasuring" parties. Here there appear to be two boat-owners, a middle-aged and an old one. A party was on the point of engaging the old man's boat when the other interfered, saying that he had bought the old man's boats up on condition that the senior would retire from business, but this year the latter had, in breach of bargain, started again. This the younger man protested, without passion or even excitement, but in vigorous tones, was "a varra durty thrick." The dialect of the district, by the way, is by no means unpleasing; one boy called to another throwing stones, "Man, chooek um aal at yanee" (chuck them all at once).



STAITHES, NEAR WHITBY.

In the neighbourhood of Whitby there are ever so many beautiful and quaint places and scenes, all of which may be easily reached; to many such places the railway will take us:—the fishing villages of Staithes and Robin Hood's Bay, and the even quainter Runswick; the fine glen with Rigg Mill; Falling Floss and Goathland, with several waterfalls in the vicinity. But, at this time of the year, there is apt to be more "fall" than water.

Time and editorial exigencies forbid further "dilation"; it must suffice to say that, whether for hand camera or stand camera, for short focus lens or "telephoto," it would be hard to find a district surpassing Whitby. If proof were wanting, the world-known work of Mr. Frank M. Sutcliffe would supply the deficiency.

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THE MIDLAND CAMERA CLUB EXHIBITION.

OPENED AT THE BOTANICAL GARDENS, MOSELEY, BIRMINGHAM, OCTOBER 2ND.

THE Midland Camera Club evince great pluck and energy in this their first attempt, and a general glance round clearly prophesies a brilliant future.

CLASS I.—INSTANTANEOUS.

Silver Medal ...	Chas. Bainton ...	No. 1
Bronze „ ...	W. D. Welford ...	„ 2
Certificate ...	S. G. Mason ...	„ 7

Silver medal is well merited, both artistically and technically, whilst bronze medal undoubtedly takes its full due. A case of three cloud studies ran even with the study of S. S. Velindra, which latter, for its technicalities, showed exceptional skill, lacked the artistic merit of the former, and equally deserved an award.

CLASS II.—LANDSCAPE.

Silver Medal ...	... C. S. Bainton ...	No. 49
Bronze „ ...	... S. G. Mason ...	„ 94
Certificate ...	... T. J. Perry ...	„ 27

Mr. Bainton again shines in the production of a pleasing composition; in one picture the effect of light and shade in the water, soft rendering of foliage with distant background, leaves nothing to criticise. Mr. Mason's (Bronze) is well deserved; his three studies are all well rendered, each one bearing special features of its own. One picture, however, would be improved by less shadow in foreground. Mr. Perry, a young exhibitor, promises to be a successful manipulator, and aims at handling and producing effects from simple subjects—viz., bits of brook and dell scenery. Mr. Mason also contributes some charming cottage studies. An Avon miller, standing outside doorway in full light, and a second figure in shade of doorway, are charmingly executed. "Avon at Cleeve," by same exhibitor, is well handled.

Class III.—Architecture.

Silver Medal...	S. G. Mason ...	... No. 128
Bronze " ...	A. H. Slade ...	... " 120
Certificate ...	Hall Edwards, L.R.C.P.	" 117

Silver award is thoroughly deserving, the subject being carefully handled. Mr. Slade knows a good thing when he sees it, and in this tempting subject, a carved oak porch, Mr. Slade has perfectly manipulated it. A corner in room takes a certificate; every detail is clearly portrayed, the beauty of the subject being its simple and natural arrangement of detail, minus the usual cram displayed in domestic rooms prior to the taking of it.

Class IV.—Home Portraiture and Groups.

Silver Medal	Hall Edwards, L.R.C.P.
Bronze "	S. G. Mason.
Certificate	A. H. Slade.

Mr. Edwards shines out brilliantly in his figure studies, his medal subject being one of the finest productions in the exhibition. Mr. Mason's bronze is won by a carefully posed bridal group. The arrangement is good, whilst the white draperies are soft and full of detail, difficult subject perfectly manipulated. In this class Mr. Slade is not so successful, and other exhibitors are equally if not more, deserving of reward.

Class V.—Figure Studies.

Silver	Hall Edwards.
Bronze	T. J. Perry.
Certificate	A. H. Slade and H. R. Leech.

A study from the nude, by Mr. Edwards, of a three-year-old cherub is very good, and from this exhibitor we may anticipate fine studies. Mr. Perry is again to the fore with a clever composition representing two schoolboys, one earnestly at work, the other copying from him. Mr. Leech exhibits a pleasing picture of lady in reclining attitude, marred only by the striped rug, giving the idea of an enormous kilt at hem of the lady's dress; a closer inspection explains itself.

Class VI.—Transparencies.

Mr. S. G. Mason is here well represented, but it is to be regretted that he was the only competitor, consequently there was no award.

Class VII.—Lantern Slides (sets of six).

Silver Medal	H. R. Leech.
Bronze "	C. J. Fowler.
Certificate	Hall Edwards.

Messrs. Leech and Edwards were each equally well deserving in their own special features, and it is a pity that Mr. Edwards' fine set of studies should have met with only a certificate. Mr. Fowler's animal studies honestly gained a bronze, showing skill in composition and natural detail.

Class VIII.—Stereoscopic.

This class was poorly represented. Messrs. C. J. Fowler and C. Brown being the only exhibitors, therefore no competition. There were, however, two interesting stereos, though rather faded, taken in 1857.

Class IX.—Animal Studies.

Silver Medal	W. D. Welford.
Bronze "	Hall Edwards.
Certificate	C. J. Fowler, L.D.S.

Mr. Welford's animal studies of pleasing variety were effectively lighted subjects, and evinced artistic handling. In this class Mr. Edwards again displays skill. Mr. Fowler is to be congratulated upon his successful work and well-earned reward. Dr. Leech also contributes some charming studies in this class.

Class X.—Enlargements.

Mr. Bainton carries off first with a good composition, "Dovedale," whilst Mr. Edwards' subject of "Old Couple at Cottage Door" is most interesting. The old wife's attitude, anxiously awaiting the return of the tottering old man nearing doorway displays this artist's abilities. Mr. Fowler's "Cottages on the Cole" amply justifies this exhibitor's taste. There were in this class several attractive features.

Class XI.—Best Collection.

Silver Medal	Hall Edwards.
Bronze "	S. G. Mason.
Certificate	C. S. Bainton.

Class XII.—Portraiture Direct.

Fancy dress portraits by	Thomas Baker,
And portraits by ...	Jeanie Welford,

were the only pictures sent in for this class, Mrs. Welford's arriving too late for entry, so there was no competition.

Class XIII.—Enlargements (Professionals).

Mr. Baker was again unfortunate in having no rivals, preventing his chance of an award.

Class XIV.—Hand Camera (six quarter-plates).

Silver Medal	Victor L. Alexander.
Bronze "	Walter D. Welford.

"Yachting on the Clyde" is charmingly well rendered by Mr. Alexander. Mr. Welford, as usual, displays his expert hand with great variety of subject.

Class XV.—Landscapes.

Silver Medal	Prince Shamarandra C. del Barmee (of ancient Tipperah, India).
Bronze "	C. Court Cole.
Certificate	Martin J. Harding.

A big live prince of big name, with big exhibits, adds the biggest feature in the exhibition. Striking Indian landscapes and Indian river scenes, handled in a masterly fashion, prove this competitor to be a true artist. A sunset effect by Mr. Moore was exquisitely rendered. Mr. Court Cole, too, exhibits work of no mean order, and the same may be said of Martin J. Harding, each taking a well-earned reward.

Class XVI.

Silver	Clarence B. Moore (Philadelphia).
Bronze	Prince Shamarandra.
Certificate	Hall Edwards.

Mr. Moore in this interesting class takes first position, and shows himself to be an artist of no mean order. The big prince again shines out with some rare productions, having marvellously produced the dark skin effect so true to nature, his poses, draperies, and choice of subjects leaving nothing to be desired. Mr. Edwards's "Progressing Favourably" shows the same genius as evinced in all his exhibits.

Class XVII.—Lantern Slides.

(This class is fairly well represented.)

Silver	E. Dockree.
Bronze	Algernon Brooker.
Certificato	Hall Edwards.

Mr. Oliver Suffield gained the certificate, but was disqualified as a professional.

Class XVIII.—Scientific.

Bronze	Frederick Iles.
Certificate	E. Dockree.

A good selection of subjects from some four competitors, including Prof. F. J. Allen and Hall Edwards.

Class XIX.—Best Picture taken in Moseley Botanical Gardens.

Bronze Medal	C. J. Fowler.
Certificate	S. G. Mason.

It is to be regretted that only three competitors availed themselves of this special class, where ample scope for varied work is to be found in every direction. The grounds are particularly pretty and inviting.

Class XX.

In the Apparatus Section, some thirty exhibitors placed an interesting show. Mr. Iles' Photo Microscope is a novelty, the main feature being the focussing by means of reflection.

Extra Open Classes taken upon Sandell Plates.

Messrs. R. W. Thomas have a large and beautiful collection of Sandell pictures of difficult subjects, and clearly show an advantage over ordinary plates, but the tone of prints is flat and monotonous.

Mr. M. J. Harding finds himself alone in Class XXIII., interiors not less than quarter-plate.

Pictures not for competition were sent in by H. Roland, White, Beaufort, B. J. Edwards & Co.

Bromide enlargements by L. S. Baker, and carbon enlargements by Elliott & Son, make a fine show, and add considerably to this interesting exhibition.

The Midland Camera Club is to be congratulated upon the success of their first exhibition. Messrs. Hall Edwards and C. J. Fowler have practically *made* the exhibition, by devoting energy and perseverance in every detail. They are to be congratulated upon the success their united efforts have achieved. The enormous work they have mastered must be relieved by seeing the happy results.

PHOTOGRAPHIC CONGRESS.

THE Congress of the Photographic Society of Great Britain and Affiliated Societies was opened by the President, Captain Abney, on Tuesday evening last, at the Exhibition Room in Pall Mall. After certain routine business had been despatched (such as the proposal of new members, the reading of recent gifts to the Society), the medals were awarded to those fortunate enough to be thus distinguished by the judges, after which Captain Abney delivered his presidential address.

He commenced by pointing out that, as on the following day he was pledged to read a paper dealing with the more scientific part of photography, he would not on the present occasion touch upon any subjects of such character, for his hearers would have quite enough of it on the occasion to which he referred. The present session, he observed, marked a new era in photography, and it opened with a congress at which various matters of great interest would be unfolded and discussed. It was true that they had, earlier in the year, a Photographic Convention, but it was different in design to the present Congress, for it was itinerant in character, meeting each year at different centres, and resembling in that respect the practice of the British Association for the Advancement of Science. They had, too, a Photographic Conference, which was promoted by the Camera Club. But this Congress, consisting as it did of the parent Society and many affiliated societies, had an importance of its own. It was a new departure, and indicated a new era, which he hoped would be productive of much good.

Reviewing the events bearing upon photographic progress during the past year, he would say a few words about another exhibition which had this week opened its doors to the public—some say in opposition to the exhibition which for so many years had found its home in Pall Mall. And even if that were the case, was it not the natural outcome of continued progress in photography? There was ample room for more than one photographic exhibition, and there was no reason why a friendly rivalry should not do good rather than harm. The only fear was that we may be inclined to hang pictures which should have been rejected, and *vice versa*. The Society must do its best to hit the happy medium, and, instead of deploring any rivalry threatened by another show, might content themselves with the reflection that most of the public who visited the Dudley Gallery would also find their way to Pall Mall. So let the rivalry remain as a friendly one. He might at least say that the present Exhibition of the Society compared favourably with its predecessors.

With regard to the Affiliation scheme, he was glad to report that no fewer than forty-seven societies had joined hands with them, and, although he was at first opposed to the scheme, he now thought differently; but they must take care, quoting a common saying, that the dog must continue to wag the tail, and not allow the tail to wag the dog. In other words, the Society must be jealous of its supremacy.

After briefly referring to the recent revision of the Society's laws, or rather regulations, the President said that he had hoped to congratulate the Society on the acquirement of new premises, for their lease of the rooms in Great Russell Street had expired, and they had found others which in every respect seemed suitable to their wants, but the negotiations had fallen through. But they were still on the look-out for more commodious premises, and would no doubt succeed in their quest. Certainly the Society was at present very much cramped for space, and there were many conveniences which might reasonably be looked for which they had to forego. Amongst them was a really good museum of obsolete apparatus and processes. Photography was but fifty years old, and unless such relics could be acquired within the next few years, they might possibly be unattainable altogether. They had already the nucleus of an art museum, for those who had been appealed to on behalf of this object had been generous in their response.

A new departure recently inaugurated was the issue of the Society's proceedings *monthly*.

He could only very briefly review the recent advances in the art of photography. One of the most remarkable was Ives' method of exhibiting pictures closely approaching the colours of nature, which was shown first at the Royal Institution, and more recently in a far more perfect manner at the Society of Arts.

He also referred to Lippmann's method of showing interference colours in connection with photographs, and the recent development of the method by Lumière. The results gained were remarkable; but, as they were to be brought before the Congress on the following evening, he need say no more about them on the present occasion.

A new lens of Jena glass, having a remarkably flat field, was recently described in their *Journal*. Dallmeyer had recently brought his tele-photo lens to great perfection, and others were working in similar ways to help photographers. All these things proved that the appeal made to opticians to keep pace with the photographic chemists had not been made in vain. Another advance by Lumière was the employment of manganese salts in printing operations.

He was glad to see that collodion was again looking up. It remained to be seen whether it would ever rival gelatine in rapidity, but recent events showed that such a thing might happen. Anyone who had worked with collodion loved it, for the beautiful negatives which were producible by it. The very smell of the ether recalled pleasant memories to him, and, doubtless, to other workers as well.

In conclusion, he thought that they were starting on a new and, he trusted, a prosperous career. With their Affiliation scheme, a congress, and an exhibition, they certainly seemed an active body. He trusted that next year his successor would be able to report that the past-president's prophecies of good fortune were not too roseate.

A vote of thanks, proposed by Mr. Bird and seconded by Mr. England, closed this part of the proceedings.

It was a disappointment to all present to learn that Professor Marshall Ward was unable to read his paper "On the Action of Light on Bacteria and Fungi," owing to indisposition.

The proceedings closed with a very interesting demonstration of Anderton's method of obtaining stereoscopic relief in pictures projected by the optical lantern.

REVIEWS.

Die Blitzlicht-Photographie. By Hermann Schnauss. (*Düsseldorf.*)

In this useful little manual will be found described many different methods of employing magnesium powder as an illuminant for flashlight pictures. Herr Schnauss is a singularly clear writer, and his description of the various apparatus employed, helped by a number of capital illustrations, is all that the most exacting reader can desire. The opening chapter is devoted to the metal magnesium, and a useful table is given showing not only its value as an illuminant as compared with gas, electricity, limelight, &c., but also its photographic value as indicated by its spectrum. Next follows a description of most of the flash lamps on the market, both English and foreign, from the old clockwork model introduced years ago by Solomon, to the oxy-magnesium lamp devised by Mr. Humphrey, of the Platinotype Company. Several good examples of flashlight groups and portraits may also be found in this useful little volume.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert, Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

17,957. Charles Mountain Blades, 122, Chester Road, Norwich, "A Stereoscopic Lens for Monocular Vision for the Examination of Photographs."—*September 25th*, 1893.

18,237. Edmund Edwards, 25, Southampton Buildings, Chancery Lane, London, "Improvements in the Process of Making Photographic Films" (Richard Reissner and Gustav Christian Furchtegott Hauser, Germany). —*September 28th*, 1893.

18,270. William Phillips Thompson, 6, Lord Street, Liverpool, "Improvements in Display Cabinets for Photographs" (Thomas Everett Wood, United States).—*September 29th*, 1893.

* * *

In a paper recently read before the Society of Chemical Industry, Mr. D. R. Steuart raises objections to the low flashing point of lamp oils, as fixed by the Government regulations. According to these, the flash point must not be below 73° Fahr., as shown by the close test; but Mr. Steuart would raise it to at least 100° Fahr., which was the maximum flash point permitted under the old open test. Mr. Steuart points out that summer temperatures frequently exceed 73°, and argues that under such circumstances there is an explosive mixture over the oil in the reservoir of all lamps burning low-flashing oils. Practically all the lamp accidents have, he finds, occurred with low-flashing oils.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, OCTOBER 13, 1893.

All Advertisements and communications relating to money matters, or to the sale of the Photographic News, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the Photographic News at the same address.

The Photographic News is issued every Friday, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

The Photographic News.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

Alexander & Shepheard, 21, Furnival Street, London, E.C.

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PHOTOGRAPHIC SKIES.

THE student of photography, at a very early stage of his career, becomes aware that there is a difficulty in the presentment of landscapes which seems to be peculiar to the art. He cannot reproduce on the same negative with his landscape that canopy of blue sky, studded with fleecy clouds of white, which gives such sublimity to the natural scene. He may vary his exposure from the quickest flash of a shutter to a period of several seconds, but it is no use. With the quick exposure he will get his clouds and no landscape, and with the slow one he will secure the landscape but no sky; or, to be more precise, the sky will be presented by an expanse of black which will, of course, print white in the positive. This fact has been so evident, that up to a generation ago a white sky in a photograph has been accepted as being the correct thing, although a white sky in nature is unknown. Possibly before colour-sensitive plates were dreamt of, it was considered that blue in any case must print white, and therefore this translation of

> "The witchery of the soft blue sky"

was accepted as an inevitable condition of a photographic representation of Nature. Says Constable—one of our greatest landscape painters—"I have often been advised to consider my sky as a white sheet thrown behind the objects." And he goes on to point out that, instead of occupying such a position, the sky should be regarded as the key-note, the standard of scale, and the chief organ of sentiment in the picture of which it forms part. But the photographer has, up to quite recent times, been quite content to adopt the white sheet idea, and has produced landscapes by the thousand in which that arrangement has been carried out. Photographs of this description are still commonly seen in the shops, and probably they will continue to be articles of commerce until purchasers demand something better, for it is obviously more remunerative to produce a picture which can be printed off from one negative, than one which requires two printings and some little skill in carrying out the work.

Even at the exhibitions white skies are occasionally seen, but, as a rule, cloud negatives are employed, and especially is this the case since it became common to photograph such subjects as broad expanses of sands, mud-flats, commons, and heaths—subjects which, from their want of interest, would not have been looked at one moment by the photographer of twenty years ago. In such pictures the sky becomes the principal part of the composition, and the skill of the artist is taxed in fitting it to his landscape. It is in this part of his work that he most commonly fails, and at both Pall Mall and at the Salon, which this week opens its doors for the first time, there are examples of skies being wedded to landscapes—and, in some cases, to seascapes—which are open to objection.

The earnest student of Nature, one who takes delight in watching the wonderful changes of light and shade which come over land and sea by the operation of moving banks of cloud, will know that every change in the sky has its effect, great or small, upon the expanse beneath. A mass of well-lit cumulus will cause a wonderful lighting up of the land or sea just beneath it, and the photographer who employs a cloud negative having such a leading mass of light, without providing in some way for its reflection in the landscape to which he weds it, commits an artistic blunder of an inexcusable kind. The amount of reflection caused by such a high-light in the heavens will, of course, vary according to the land or water surface underneath. After a shower of rain, every point of ground, every leaf and twig, will sparkle almost as much as if the sun itself were the direct source of illumination. But where the ground is cut up with undergrowth, and the rain-pools and wet stones are hidden, the reflections will naturally be killed, and between land and sky there will be greater contrast.

But the close relation as to light and shade between sky and earth is best seen when large expanses of water are involved. In calm weather, the water is often a mere transcript of the sky, every tender hue and every cloud form being vividly reproduced. A rippled surface destroys this harmony to some extent, but still the little ridges of water catch the light, and the reflections of the clouds are strongly marked. In a rough sea the reflections reach the eye as mere splashes of brightness, but still, as a whole, the clouds above are broadly painting the waters beneath with their own tints. It would be a good exercise for the photographic student, before finally associating a particular cloud negative with a landscape, to make a bold print of it, and to place below it a looking-glass. He might then place by its side the landscape to which he hopes to wed it, and he would then see whether the reflected lights and shades can, in some measure, be made to render themselves evident in the joined pictures. There are, of course, cases where our remarks do not apply, as, for example, a landscape strongly lighted by direct sunlight, with a background of dark sky, as on the approach or departure of a storm. But, as a rule, the sky should be the key-note upon which all the harmonies depend; and this is, we fear, too often forgotten by the photographer.

PHOTOGRAPHIC SALON.

DUDLEY GALLERY.

ANY one visiting the new Exhibition at the Dudley Gallery, who did not happen to be aware of the gradual advance of a new school, and who based his idea of what a photograph should be by the landscapes and portraits commonly sold in the shops, would most probably utter an exclamation of surprise as he looked round these walls. Possibly he would be inclined to say, "Photographs I know; but what are these?" and one must certainly sympathise with such an one in his wonderment, for the pictures hung here are as unlike the photographs of a decade ago as any two sets of pictures can be. The purple tones then prevalent have gone, and have been succeeded by colours ranging from red and blue to secondary and tertiary tints of complex character. And not only do these pictures differ from their forerunners in their colour, their texture has changed too. The bright glaze of white of egg has vanished, and has been supplanted by matt-surfaced platinotype and bromide paper, by coarsest-grained drawing paper, by linen, by canvas, and by silk. Indeed, it would seem that the advanced photographer of to-day had searched the mercer's shop in the hope of finding something new which would lend softness and aërial perspective to his work. And we may at once admit that some of these new materials, which will, doubtless, be placed upon the market so soon as sufficient demand for them arises, give extraordinary richness to the pictures, and causes some of them to resemble monochrome studies in flatted oil rather than photographs pure and simple.

Most of the pictures shown at the Dudley Gallery are new, a small proportion only being old acquaintances; while in one or two cases pictures exhibited at Pall Mall are duplicated here. To these it will not be necessary to call renewed attention, as they either have been or will be presently dealt with by our critic at that Exhibition.

The first picture in the catalogue which arrests attention is one by Mr. Henry W. Bennett, with the title, "At Evening Tide." A fishing boat in a choppy sea, with its shadow, or rather reflection, in the swirling water, presented in a very unusual but effective manner. Mr. Bennett has contributed some other pictures of the same type, notably No. 252, "A Moonlight Departure." This is a very effective picture, but we doubt that if the sky and sea had been wedded together in nature the latter would not have been more luminous. An excellent figure study, by Mr. Frank Sutcliffe, No. 7, printed in bright red, suggestive perhaps of summer heat, lends contrast to Mr. Stevens's fine tabby cat hung just above it. There is another study by Mr. Sutcliffe, close at hand, of a laughing fisher boy, which is very natural and unrestrained in its pose. No. 10, "A Breaker," by Mr. W. P. Marsh, is an effective piece of work, but the touching up of the high lights is a little too evident. "An Orchard in June," No. 14, by Mr. Calland, would have had a finer effect if printed in a different tone; its dirty brown colour is really so different to what one imagines the original subject to have been—a blaze of white blossoms peeping out of golden green leaves, with a background of sapphire. Could not Mr. Calland have suggested something of the sort instead of translating his negative into this whitey-brown language? In No. 16, by Mr. J. B. B Wellington, we have another brown picture; but here there is the necessary contrast between the sunlit sky and the dark water-shadows to satisfy the eye, while the silver trunks of the birches, and the light stealing through their foliage, help to make a fine picture from very simple materials. "A Study" (No. 34), by Mr. Van der Weyde, merits attention. A pretty girl, admirably posed, is looking up at a bird in a cage; the background is quite light, and suggests the presence of a window curtain, the light falling upon the face and neck from above, leaving the foreground in half shadow. "Sweet Kitty" (No. 43), by Arthur Burchett, is another good figure study, the flowers at the back being grouped in an unconventional but thoroughly artistic manner. Mr. H. P. Robinson, who has throughout taken such interest in the success of the Exhibition, has done his best to add to its attractions by contributing several noteworthy pictures, which show that his hand has not lost its cunning. One of the best is that numbered on the catalogue 48, entitled "Weary Waiting." In this pretty picture a girl is seen leaning on the rail of a rustic bridge, the light being very happily chosen, and the figure and bridge being thrown into stereoscopic relief by the cast shadow. Mr. Robinson's stormy sunset (No. 56) has all the broad effect of one of Martin's or Doré's paintings. Other subjects, entitled "Morning Mist," and "Wild Weather," are of very different character, but are treated in that masterly manner which we have learnt to expect from their producer. No. 50 is the study of an Indian Fakir, a fine model, who appears in another picture, which will be presently noted. A very pleasant, sunshiny piece of work is No. 62, "Midsummer," by Dr. Hugo Henneberg, which might have been improved by a little more foreground and a consequent throwing back of the figure. A beautiful seascape is No. 59, by Mr. P. Martin, its title being "Anger." The sky here is cleverly subordinated to the boisterous breakers in the foreground. Mr. Brownrigg is also worthy of honourable mention for a very happy conjunction of sky and sea in his picture called "Nearing Sunset off Molde, Norway." Mr. A. R. Dresser must have a word of praise for his "Misty Day on the Thames" (No. 70). This is a very effective production, and its author is to be congratulated upon getting something satisfactory and pleasant out of a London fog. Colonel Gale has half a dozen half-plate pictures here, and as usual they are very perfect landscape studies wedded to happily chosen skies. These pictures should form a good lesson to aspirants for photographic fame in teaching them what simple materials go to make up a picture, provided such component parts are skilfully treated. No. 78, with the title "Meditation," is a very fine portrait which attracts attention from its natural pose, printed in sepia platinum on linen or canvas; it is one of those effective pictures in the gallery which, as we have already indicated, owe much of their beauty to their texture. No. 85, "Toccata," by Mr. Alfred Maskell, is an effective lake scene in the subdued light of evening; like other pictures in the Gallery it is most effectively seen by a stepping back a few feet. We have already alluded to the picture of the Fakir, which we should have mentioned was the work of Mr. Shapoor Bhedwar, who, as we all know, is skilled in pictures of Indian life. In No. 86, we come upon another picture by the same worker, with the somewhat paradoxical title, "The Voice of Silence." The picture represents a girl writing down on a slate to the dictation of a blind Fakir. It is a very beautiful production, and we have been favoured with a description of it from its producer from which we make the following abstract:—

"Early in prime the privation of sight and the cup of life having been made bitter to the brim by the loss of his dearly beloved wife, thus suffering the greatest miseries that flesh is heir to, this man retires from and renounces the world and adopts the life of a recluse—a 'Yogi' or 'Fakir.' Living in a hut far away from the bustle and hum of busy life, he passes the remainder of his days in search of those spiritual comforts which teach him to realise the grand lesson of humanity, 'to suffer and be strong.'

"In his seclusion he tends devotedly his only daughter—his solace and his sole surviving link—instructing her in the path of virtue and divine wisdom.

"Although the Fakir is physically blind, yet his mind or, say, his mental eyes are full of light and holy learning. In this sense, though he is cut off by this physical defect from enjoying a sight of this terrestrial world, his mind is in constant communion with that Supreme Power in whom he has bound his faith. With great fervour and holy love does he cherish his only daughter, who is the only light in his darksome and dreary existence upon this earth.

"Now it reminds me further of stating how I came across this 'Fakir.' It happened once that while driving through one of the most crowded and busiest streets in Bombay, my eyes suddenly fell upon him. His clustering locks flowing down upon his shoulders, and that Messiah-like similarity of features, with a face stamped with pious suffering and look of calm resignation, at once arrested my attention. I at once asked my cabman to stop, and I accosted him. It was after some persuasion I could induce him to accede to my request to bear me company. I drove him down to my studio, made him sit and take rest, and we both began to talk. I soon found that the man was very intelligent and well versed in the doctrines of his faith. His way of discussing some difficult questions, such as predestination, freewill, and life hereafter, was highly impressive and suggestive.

"I may here add that the theme of the picture, having been drawn from imagination, has no bearing with the Fakir. "Shapoor N. Bhedwar."

A very curious picture of the distortion in the lines of buildings as seen in the reflecting surface of rippled water is shown in No. 88, with the title "Reflections, Amsterdam," by Mr. J. C. Annan. There is here an effective portrait study (No. 92) by Dr. Emerson, whose name we are glad again to see in the catalogue of a photographic exhibition. Passing by some nude studies by Count von Gloeden, which have already been noted in our review of the Pall Mall Exhibition, we come to a number of clever pictures by Mr. Ralph W. Robinson. Of these. No. 111 a foreign street scene, is one of the best. No. 115 is also a very attractive work, entitled "The Summer among the Flowers." This has a painting-like quality in the foliage and grass which is as effective and beautiful as it is rare in a photograph.

A very fine seaside study is (No. 117) "Fishers' Wives," by Mr. J. C. Annan. It represents a group of women sorting out a catch of fish on the sands, while as a background to their dark figures is a line of white formed by the breaking waves hurrying in their race over the flat sands. By the same photographer is a really beautiful full-length portrait of a little girl in plush; both background and accessories are happily arranged, and quite an original effect is produced. No. 121 is another good portrait from the same camera. Mr. Bernard Alfieri contributes several good things to the Exhibition, one of the most charming being the picture called "Silver Birches" (No. 126). This is a gem—a harmony of pearly greys and whites which is very pleasant to behold and satisfying to the eye. "The Derelict" (No 129) is another fine picture by Mr. Alfieri, in which a wreck is represented, with a sky which is faithfully reflected in the calm expanse of water below. The effect of wind on growing rushes has been very well caught by the same photographer in No. 130.

(To be continued.)

PATENT OFFICE

THE PALL MALL EXHIBITION.

(*Concluding Notice.*)

THE "Old Ferry, Ratnapura, Ceylon," from negative by F. Bayley (carbon enlargement) (No. 134), is one of fifteen exhibits by the Autotype Company. It is very large, very curious, and somewhat uninteresting. No. 135, "Fourteen Hand-Camera Studies" (platinum), by W. Snell Anderson, are good and interesting. Nos. 139, 140, 141, are three more little beauties; they look like steel-plate engravings. No. 146, "Fountains Abbey," by J. T. Hopwood, shows very good definition. Nos. 147 to 150, "A Canvey Farm," "Spring," "Benfleet Creek," and "On the Colne," four beautiful landscape studies by Karl Greger. It is hard to choose between them, as they all show wonderful out-door effect. In "Canvey Farm," perhaps, the daylight appearance is most marked; in "Benfleet Creek," too, the daylight effect is good, and so is the sky; and "Spring" is a really beautiful picture, with extraordinary definition, and yet giving great breadth. No. 145, "The Breakwater at Colombo," negative by F. Bayley (carbon enlargement by the Autotype Company), represents the familiar breaking wave. No. 152, "Portrait" (direct carbon), shows pleasant colour, and in parts very good work. No. 154, "Studies" (in red carbon), by W. J. Byrne. One of these, a seated female figure, is as good a bit of female portraiture as one can desire, and is less artificial-looking than some of the others; but what is the matter with the architecture in the picture of the Duke of Montpensier? The unfortunate line at the back greatly mars this very excellent child picture. No. 156, "Portrait Study" (direct carbon), seems rather empty-looking, but is redeemed somewhat by the face, which is good. No. 158, "View in the Zermatt Valley" (bromide enlargement), by William England, is of excellent quality and picturesque. Nos. 159 to 162, four more wonderfully beautiful pictures, entitled, respectively, "Norfolk Marshes," "A Dorsetshire Cottage," "Riverside Pasture," and "In the Saltings," by Mr. Karl Greger; what we have said about his other pictures applies in the main to these. No. 159 gives us another instance of this artist's power of rendering daylight, but No. 161 is about as perfect in technique and choice of subject as any pastoral picture we have seen; it is, in our opinion, one of the most beautiful pieces of work in the Exhibition. Nos. 164, 165, "Chigwell Lane" and "Evening in Wanstead Park" (toned bromide), by H. Colebrook, are both commendable, but to our taste the latter work is the more pleasing. Nos. 167, 168, "A Moorland Mill" (carbon) and "Evening Glow" (gelatino-chloride), by F. P. Cembrano, jun., are both praiseworthy, but No. 168 is infinitely the preferable. No. 170, "A Hazy Morning—Richmond" (silver), well carries out its title, by giving a very good effect of haze. No. 171, "A Silent Stream" (silver), by A. A. Boucher, is a beautifully poetic little picture. Nos. 173 to 178, six platinum pictures of Westmoreland mountain scenery, by H. C. Pettitt, show good topographical qualities, the last-numbered picture, "Derwentwater," being especially noticeable for its extraordinary wealth of detail. Directly under this frame is No. 180, "Lake Lugano," by T. A. Sinclair, showing quite another order of work, and giving an opportunity for the comparison of the two styles—the highly elaborate as printed on smooth paper by Mr. Pettitt, as against the somewhat vague negative printed on rough paper as adopted by Mr. Sinclair. No. 191, "Winter Scene, Pangbourne" (sepia platinum), two lane scenes with trees feathery with snow; both are excellent, the picture on the left of the frame being especially commendable. No. 194, "'Old Jim,' Rhinoceros at the Zoo" (carbon enlargement), is one of several excellent animal pictures by Mr. Henry Sandland; this picture stands above the others by its grasp of detail involving no loss of dignity. No. 198, "On the Marshes" (silver), by Arthur J. Golding, is a very charming picture of sheep and trees and water; it is very happily composed. No. 202, "Mrs. Waterlow and Sisters," by H. S. Mendelsohn, is a very fine portrait group by this clever photographer; it is printed in a nice, pleasant colour; the grouping is good, and it is delicate and soft, without being too vague. No. 227, "A Typical Scott" (direct carbon), by Alexander Brothers, gives us a fine piece of portraiture. No. 233, "Drifting with the Tide" (bromide enlargement), by A. R. Dresser, is a good seascape with boats, which is furthermore helped by the artist's tasteful framing. No. 235, "Spring" (silver), by J. H. Avery, looks a good picture, but the height at which it is hung prevents a proper examination. No. 280, "The Carpenter's Alphabet" (silver), by W. J. Byrne, is an interesting series of twenty-six studies of children—a very ingenious idea. No. 294, "Three Portraits" (platinum), by William Grove; pretty delicate pictures of a pretty model. Nos. 291 and 300, each described as "A Frost Study," by George Renwick, are clever snow scenes, the merits of the pictures being greatly enhanced by the clever and tasteful arrangements of the frames, the artist evidently appreciating the fact that a frame should be part and parcel of the picture it surrounds. No. 299, "In Spring Attire" (cold bath platinum), by Tom Bright, is a little picture, but very choice, though the tops of the trees seem a little too vague and foggy. No. 315, "Crucial Comparative Test of Tele-Photography as against Enlargement;" six views, by W. K. Burton, with the Dallmeyer lens. The result of the test is that enlargement comes in second as against the direct photograph with the tele-photo lens. Nos. 311, 312, 313, "Scenes in Java," by O. Kurdjian, are three extremely interesting pictures of Javanese life, broad in treatment, and yet carrying ample detail. No. 314, "The Garden Gate," described in catalogue as "a line etching on copper from pen-and-ink drawing," by E. S. Shepherd. If this is a "line etching"—whatever that may mean—how does it come to be exhibited in a photographic exhibition? No. 318, "Balloon View of Girard College, Philadelphia, from a point 1¼ mile high; taken with the tele-photo lens" (bromide enlargement). This photograph, giving remarkable fulness of detail, serves to show to what valuable purpose the tele-photo lens could be put in time of war. No. 328, "St. Paul's without the Walls, Rome" (bromide), by Henry Little, is a very good specimen of architectural work, of which there are not very many in this Exhibition. No. 332, "Baldwin's Descent with his Parachute, showing Baldwin above at the height of 2,500 feet" (bromide enlargement), by A. A. Chancellor, is not only very interesting in its motive, but is an excellent piece of work besides, showing as it does, at that great distance, wonderful detail.

CORRESPONDENCE.

A FEW FIRST IMPRESSIONS GATHERED FROM THE SALON.

Sir,—1. A first glance round the room brings to mind the trite, if not very elegant, saw, "Adversity brings together strange bedfellows." But, perhaps, we are on, or near, delicate ground when we ask, How does it come about that A., B., and C., hitherto so widely differently thinking and working, are here rowing in the same boat? Time was, and that, too, within the memory of living man, when A.'s work was an abomination to B., and B.'s was as a red rag to C., while the only point upon which A. and B. did not differ was in thinking that C was a lunatic, if not worse.

Apparently something has happened, for are they not now saying, *Nous avons changé tout cela?* Hence we conclude that what is condemned to-day may be extolled to-morrow. Everything comes to him who can wait. There is still a chance for photography.

2. We soon learn from the general hum of conversation that old and familiar words are changing their meaning. The "new school," as they like to be dubbed, have a little language of their own. You and I, gentle reader, once upon a time were familiar with the words print, photograph, picture. But now those are antiquated terms, left for common artists and etchers and such inferior folk. Impressionists speak of their productions as *things*. "How do you like D.'s *things?*" "Have I anything here? Oh, yes, just one or two little quiet *things*." Of course, the musical terms, key, scale, tone, harmony, passage, &c., are in constant use. Query, is it correct to talk of a *staccato line*, an *adagio shadow*, a *sostenuto mount*, an *allegretto frame*, a *scherzando* or *smorzando colour?* It is only after further acquaintance with many of the "things" that the appropriateness of this term is made fully apparent. Necessity, that fruitful parent of invention, is probably to be thanked in this case. Because, now that the word "picture" has become associated in the minds of many with the appreciation, expression, and intelligible rendering of the beautiful, it would be confusion worse confounded were we suddenly to turn tail upon this well-established usage, and apply that loved word to something "which no fellow can understand," and very few stand at all under any circumstances. Again, while a photographic print owes its being to the action of light, it does not follow that every change of tint or colour due to light is included under the term "photograph," or we should have to include our faded wall-papers and dingy carpets. So that, perhaps, after all, productions which cannot properly be called photographs, prints, or pictures had better be allowed a full measure of charity under the sheltering word "thing."

3. From common rumour floating in the air we had gathered an impression that only new work was to be sent in. With the majority this seems to be the case. But, on the other hand, we certainly imagine we have elsewhere previously seen something remarkably like some of the things now on view. Possibly, however, it is part of "the cult" to lead the uninitiated into a quagmire of delusion, and make them think they see what they do not see, and *vice versa*. In that case thrice happy should the "new school" be in having found a resting-place for their productions and themselves within the precincts of the far-famed Egyptian Hall. The door whereby the common people enter—the passage—the very air (gas-flavoured and "foggy") are hallowed and saturated with the "creepy" feeling of magic. Henceforth we shall not be surprised to see any of Mr. A.'s portraits give a life-like wink, or Mr. B.'s step out of the frame; nor shall we "turn a hair" if, after intently gazing for a couple of hours or so at the foreground "contrapuntal adagio passages" of Mr. C.'s "pastoral symphony," or Mr. D.'s "rural riccercata," to discover that what we in our innocence had taken to be haycocks turn out to be sheep; or what we thought might be foliage proves itself to be a group of rustics having afternoon tea.

4. As a general rule a compromise is synonymous with a failure. The man who tries to please himself *and* some one else may perhaps succeed, partly in the first half of his attempt, but he courts failure in the second. We have seen several one-man shows, and many general exhibitions. In this show there seems to have been an attempt to combine the two. Perhaps it might be described as the "Triplets' Trot Round"—*i.e.*, a combination of three separate and independent one-man shows, occupying the chief parts of the three principal walls, the odd corners and scrapments generally being utilised as a background and filled up by the common people. The result is far from satisfactory, and has already drawn the comments of various visitors. "Why do A., B., and C., each get ten or a dozen "things" hung side by side, and X., Y., and Z. have one or possibly two each?" A.'s explanation is that each of his half-score or more "things" are infinitely superior to the best of what Z. sent in, and the one accepted was only admitted at all under semi-protest. But Z. says A. was "a strong voice" on the committee, and if his "things" had not been accepted he would have made things crisp and chippy for B. and C. and D. when their "things" came up for judgment. In a word, Z. says it was just a case of "You scratch my back and I'll scratch yourn." A. says that as Z. was not on the committee he doesn't know how the trick was worked. But Z. retorts by referring to the arithmetic of the catalogue, saying that there are 285 exhibits shown by 110 workers—say an average of two and a half each. Of these 110 exhibitors, thirty-three are in the committee list. These thirty-three committee names together contribute 147 frames, or an average of about four and a half each, leaving 138 to be averaged among the remaining seventy-seven contributors, say, just under two each. However, on looking through the non-committee names we find one gets in eight frames, two get in five, three get in four, and six are crowned with three frames; the remainder have to be thankful with one or two apiece. On turning to the committee names we find one gets fifteen, four have eleven, one scores eight, two get in seven, one has six, four get five, and half a dozen reach the figure four; the others being consoled with one, two, or three, as the case may be. A., however, gaily informs Z. that after all this is only the evidence of figures. Z. cannot deny this truism, and collapses, confessing that he has been, "had" this once, but that, "once bit twice shy," the same ring will not catch him a second time.

Looking on from a distance one is prompted to ask: Has it been quite wise to try and combine a trio or quartet of one-man shows with the semblance of a general all-round exhibition? Would it not have been more satisfactory to have taken one of two definite courses—viz., either to have confined the exhibits to the committee and had an unadulterated mutual admiration society display pure and simple, as no doubt everyone admits they had a perfect right to do; or, on the other hand, to have run the show on the usual lines, without approaching any semblance of giving undue prominence to any one exhibitor, by limiting the number of submitted frames to, say, four, or even six, as a maximum. Possibly the committee have not quite fully realised the fact that, having opened their doors to outsiders, the trouble, time, and expense of conscientious preparation for an exhibition of this kind establish some claim to due and weighty consideration, if they are to obtain the general confidence which they naturally desire. It is not saying too much to assert that many of those who submitted, say, half a dozen of what they considered their best works, would have infinitely preferred to have had all rejected to having had only one accepted, and that under semi-protest.

It seems to be in some sort of way (at present not made quite clear) a basis for congratulation that twice as many frames were rejected as accepted. This general war-whoop seems to recall the amiable gentleman who bases his claim to recognition upon the number of scalps at his girdle. Perhaps it is never safe to prophesy; but the temptation is strong upon us to venture thus far, and say that those who have provided the scalps this time will, by the time the next Salon tries to flap its wings, an event by no means certain, be not so much sadder as wiser men, and agree with the great precept: "Verily all things—including impressionism in photography—are vanity." "M. OR N."

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

October 5.—The Chair was occupied by Mr. T. BEDDING.

MR. A. BUCHANAN was elected a member.

Mr. A. HADDON said that at a previous meeting Mr. B. J. Edwards had stated, not on his own authority, but that he had found it in some work on photography, that the amount of sulphurous acid in metabisulphite of potash was seven times that contained in sulphite of soda, and that only a seventh as much need be used as a preservative of pyro. He (Mr. Haddon) found by calculation, which he repeated on the blackboard, that the proportion of sulphurous acid was 57·6 per cent. in metabisulphite, as against 25·4 per cent. in the sulphite, a difference of about 2 to 1 instead of 7 to 1.

Mr. W. H. HARRISON said that, as anhydrous sulphite of soda was now an article of commerce, it would be interesting to know how that worked out.

Mr. HADDON found that it would be about equal to metabisulphite of potash.

In reply to a question as to which was the better process for producing enamels—the substitution or the dusting-on process—Mr. HADDON said it was a matter of taste. If variety of colour was desired, the dusting-on process offered the greater facility. For retouching substitution enamels, the spare films from the edges of toned films were collected, dried, and ground up with oil of lavender.

Mr. HARRISON mentioned that he had seen in some old enamels a network of fine cracks covering the surface. A liability of this kind might have to be taken into consideration with regard to the question of permanency.

HACKNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, October 3rd, 1893.—Mr. R. BECKETT in the Chair.

MEMBERS' work was shown by Messrs. BARNES, HUDSON, and PUTTOCK.—The following questions were asked: What exposure was necessary for printing in clouds on a lantern plate, nominal exposure for a negative being forty seconds? Presuming the density of the negative to be the same as that which is to be printed from, it would require about fifteen to twenty seconds' exposure. Mr. S. J. BECKETT used the cover-glass to put the clouds upon. Mr. FENTON-JONES used a printing-frame, shading portion upon which the landscape would come with a book. A similar question was asked as above for printing in clouds in bromide paper. The exposure would be about quarter to half of what the negative would require.—Mr. S. J. BECKETT asked the best way to remove amidol stain from lantern slide. Several members stated it could not be removed. As a trial, nitrate of soda was suggested.—Mr. GRANT asked the reason of black spots upon a negative developed with pyro and soda. Mr. BECKETT stated it looked like an old plate.—Mr. SMITH asked whether any shorter exposure was required for bromide paper, developed with Dresser's formula. Opinions seemed to be that it should be the same, only a weaker developer would take longer to obtain the same degree of density. With amidol, according to the strength of developer, so you can make it a quick or slow developer density being obtainable with either.

Mr. E. J. WALL then proceeded with a very instructive paper upon lenses, and dealt very largely with the subject, giving the various kinds, their uses, manufacture, faults, &c., illustrated with designs in coloured chalks.

A vote of thanks to Mr. Wall for his paper concluded the evening.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

October 2nd.—Ordinary Meeting held at Hanover Hall, Hanover Park, Peckham.—Mr. MAURICE HOWELL, Vice-President, in the Chair.

AT the conclusion of the formal business Mr. E. J. LESTER gave an instructive and interesting address on "Outdoor Portraiture." In his opening remarks he stated that the beginner's instruction books always made a point of advising photographic novices to leave portraiture severely alone until they had mastered to some extent the art of taking views. However good this advice might be, it was in nine cases out of ten wholly ignored, and the beginner as a rule commenced his photographic career by attempting to get pictures of his admiring relatives and friends. The speaker would therefore endeavour to show how portraiture might be undertaken out of doors with results that very often could hardly be distinguished from studio work. The background was the first obstacle to be overcome, when a large vignetted head was the desideratum. He found that a clean blanket stretched across a line and fastened with pegs, acted as the best medium in this respect. He always selected the wall of the house, from the other side of which the sun was shining and then fixed his background at an angle; the person whose head was to be taken was seated (and this was important, as in this class of work long exposure was necessary, and, if the subject was made to stand, the head would be almost certain to move) and a side face arranged for. The tip of the nose was focussed and the exposure made with an ordinary plate (about 4 secs. in a fairly strong light) at *f*/11, which stop will be most useful. All darkness, which would otherwise be noticeable under the chin and at the side of the face, was thus got rid of and a nice shade on one side of the face substituted, which gave the finished print the appearance of studio work. If the eyebrows of the sitter were very prominent, the face should be slightly raised and the camera tilted on a parallel with it. Heliotrope was the best colour for ladies to be photographed in. If a sitter was fair, light clothes should be worn, but if dark-complexioned the operator should see that only black or very dark blue clothes were put on. With regard to developing, he was in favour of pyro-soda. As to a background for a group, he advised his hearers not to attempt to improvise one, or it was almost certain to end in failure, and, if they must have an artificial background, they would have to get one made specially.

The judges at the South London Photographic Society's Exhibition will be Mr. F. P. Cembrano, jun., Mr. W. E. Debenham, and Mr. Leon Warnerke.

Fixture.

October 16th, 1893.—Members' lantern night. Testing of slides previous to being sent in for exhibition.

BRIXTON AND CLAPHAM CAMERA CLUB.

THE last meeting of the above Club was held on Tuesday, the 3rd inst., the chair being taken by Dr. J. REYNOLDS, F.R.G.S., President.

Four new members were elected, two of them being ladies.

At the conclusion of the ordinary business, Mr. DOCKREE, one of the members, read a paper upon "Gelatino-Chloride Papers." He traced the history, and explained the composition, use, advantages, and disadvantages of these papers. Several methods of toning were explained, and numerous hints as regards printing, toning, and general manipulation of the papers were given.

Mr. Dockree's remarks were thoroughly illustrated by numerous examples of the results obtained by using the various toning baths. He has, after a series of experiments, succeeded in obtaining a toning formula for producing results almost identical with platinum prints as regards appearance, and it was difficult to distinguish, in the specimens which he produced, which were platinotypes and which were chloride prints toned with his bath. Numerous examples of failures were also shown.

The paper, which was most complete, was closely listened to by the members present, and at its conclusion the President thanked Mr. Dockree for the paper on behalf of the Club.

Later in the evening the Club decided to purchase an enlarging camera, and it is expected that sufficient funds will be forthcoming to enable the Club to purchase the apparatus at an early date.

Next meeting, October 17th.—Paper by Dr. REYNOLDS on "Diazotype Printing"—*i.e.*, printing in aniline dyes.

PUTNEY PHOTOGRAPHIC SOCIETY.

THE first meeting of the winter session was, by the courtesy of Mr. Poole, held at 116, Upper Richmond Road, on Monday, the 2nd inst.

The VICE-PRESIDENT (Dr. W. J. Sheppard), in a short introductory address, briefly but lucidly reviewed the progress made in photography during the past year. Referring to the Society, he said that, both in numbers and work, steady improvement had been made, and the remarkably good and enthusiastic meeting that evening showed plainly that there was a bright and prosperous future before it. He hoped the members would now shake off some of their modesty and compete at the open competitions this winter, as he believed their work certainly gave them a right to. The Society would hold an exhibition in December, and he felt certain, if the members would all compete and send their best work, the show would be very successful. He had great pleasure in announcing the result of the summer competition for prints, the silver medal being won by Mr. Walter L. Colls, the bronze medal by Mr. H. Faulkner, and the certificate by Mr. W. Martin, jun.

Three new members having been elected, were welcomed by the VICE-PRESIDENT, who introduced them to the meeting.

A committee was elected for drawing up rules and arranging the details of the proposed exhibition.

During the evening some of the prints sent in for competition to the *Hand Camera and Lantern Review*, kindly lent by the Editor, were circulated among the members, giving them a good idea of the standard of excellence of competitive work.

Mr. ZACHARIASEN introduced a hand-camera designed by himself. After briefly stating some of the disadvantages connected with nearly every form of magazine camera, and the preference shown by many good workers for dark slides as being generally more reliable and suitable for good all-round work, he proceeded to describe his model. The only objections to the ordinary dark slide were, he thought, their bulk and weight, and perhaps more particularly the danger of stray light getting in when used in a hand-camera, and frequently carried about for a considerable time with shutter of the slide drawn. To meet these objections, he had constructed double dark slides, weighing 2¼ ounces and three-eighths of an inch thick; he was enabled to make this reduction in weight and thickness by the novel design adopted, in which the usual draw-out shutters and partitions between the plates were dispensed with. But what he attached still more importance to was that all parts of the dark slide would, except when changing, be placed and manipulated in a light-tight chamber, so that the chance of any plate being fogged was absolutely *nil*. The camera shown was externally very like the ordinary box form, measuring 5¾ inches wide by 4½ inches high; it was made to hold twelve dark slides, each containing two quarter-plates.

Proceeding to show the working, he opened a small lid at the back, inserted the slide in a groove, and shut the lid; when the slide is thus enclosed in the camera all that is required to make the exposure is to give a small lever on the outside of the camera a quarter of a turn. As this need only be done immediately before exposure, the sensitive surfaces are very efficiently protected against any dust which may find its way into the camera when travelling or carrying it about. A great safeguard against carelessness has been introduced here, as it was clearly demonstrated that it was quite impossible to withdraw the slide until it was securely closed. On examining the camera it was seen that there was no delicate mechanism or springs to get out of order, and that the system was simplicity itself, merely consisting in inserting the slide and turning the lever.

Mr. Zachariasen said he had thoroughly tested the camera during a five weeks' tour to Norway, when about 150 films were exposed, without the faintest hitch or sign of fog on any one.

SHEFFIELD PHOTOGRAPHIC SOCIETY.

THE annual meeting of the above Society was held at the Masonic Hall on Tuesday evening; Mr. B. J. TAYLOR in the chair. After the election of two new members, the TREASURER presented his statement of accounts, which showed a very considerable balance in hand, and was duly passed. The **Secretary** gave a general report of the proceedings for the year, showing in detail the work which had been done each month. The excursions, although not numerous, had been well attended, and resulted in good work being done, espe- in the one to York. The Society was never in a more flourishing condition than now. The Secretary also announced several important fixtures for the next season. The officers for the forthcoming year were elected as follows :—President, Mr. Ernest Beck ; Vice-Presidents, Messrs. B. J. Taylor, Bradley, Nowill, and Geo. Bromley ; Council, Messrs. J. Smith, W. T. Furness, T. G. Hibbert, T. Firth, D. C. Brooks ; Treasurer, Mr. W. M. Toplis ; Secretary, Mr. T. Camp ; Reporter, Mr. E. H. Pearce. After votes of thanks to the retiring officers, the members taking part in the exchange produced their pictures for division, and a most successful meeting terminated.

Rotherham Photographic Society.

The annual meeting took place on Tuesday, October 3rd. Dr. **Baldwin** (President) occupied the Chair, and there was a good attendance.

The **Hon. Secretary** presented the fourth annual report, which stated that the Society had increased in membership and local importance. It had become affiliated to the Photographic Society of Great Britain ; had received official recognition from the Rotherham Corporation, having by invitation furnished a room in the newly-opened public museum in Clifton Park ; and had inaugurated a photographic survey of the district. As to the general work of the Society, there had been indications of improvement. Members were, however, urged to furnish negatives and prints for criticism, and to make fuller use of the question box. The average attendance at the fifteen ordinary meetings held had been nearly nineteen. The papers and demonstrations had proved of great interest, while the four excursions—Ingleton, Wyming Brook (Sheffield), Roche Abbey (Rotherham), and Wingfield Manor (Derby)—were popular. The annual exhibition in the early part of the year was very successful from a photographic point of view, and received a fair amount of public patronage. The opening ceremony was performed by Lady Albreda Fitzwilliam, herself a follower of the art-science. Acknowledgment was made of various journalistic contributions. The membership had increased to fifty-one. The report and balance-sheet (also presented) were approved.

The balloting for the Council resulted as follows :—Dr. F. B. Judge Baldwin (President), Messrs. E. Isle Hubbard, W. H. Haywood, G. T. M. Rackstraw (Vice-Presidents), H. C. Hemmingway (Hon. Secretary), W. H. Shephard (Hon. Financial Secretary), J. Leadbeater, W. Mason, J. W. Whittington, I. Wright, and W. Firth.

Four new members were afterwards elected.

The short time at the disposal of the meeting after the conclusion of the business was devoted to lantern-slide examination and criticism.

Ashton-under-Lyne Photographic Society.

On Wednesday and Thursday, October 4th and 5th, Dr. **Hamilton**, Messrs. **Thomas Glazebrook**, **Samuel Woolley**, and **Robert T. Marsland** gave an exhibition of stereoscopic views. Dr. Hamilton's contribution depicted views taken in Norway, Switzerland, and places visited by the Society during the summer. Mr. Glazebrook's were from the Isle of Man, North Wales, &c., including one or two very fine cattle studies. Mr. Woolley's views were mostly taken on the Society's rambles, and as they were taken by his (own-made) hand-camera, many of them were a source of much amusement. One of the views (taken on the Marple ramble when at tea on the lawn at Joel Wainwright, Esq.'s) was very good. It was one of the Society's vice-presidents taking his last cup of tea, sitting on the grass with an empty plate beside him, with a number of friends smiling around him. Another view was one taken on the Liverpool outing. It was at the time of the Liverpool Assizes, and was taken from the top of the St. George's Hall steps as the judge was leaving his carriage and coming up the steps. Mr. Marsland's views were nearly all taken on the River Dove, between Mill Dale and Hartington, with a few on the River Manifold.

A large number of members and friends visited the rooms of the Society, and were very much pleased with the exhibition.

Newcastle-on-Tyne and Northern Counties Photographic Association.

Fixtures :—

October 24th, 1893.—Annual Meeting.—" Amateur Photographer " 1893 Prize Slides.

January 9th, 1894.—" Photography " 1893 Prize Slides.

February 13th, 1894.—Paget Prize Printing-out Processes. Lecture and demonstration by S. H. Fry, Esq., of London.

Date not fixed.—" Photography " Hand Camera Prints.

" " National Lantern Prize Slides.

April, 1894.—International Photographic Exhibition at Art Gallery, Newcastle.

Other fixtures which are pending will be announced in due course.

The dark rooms are open from 8.45 a.m. until 10.30 p.m. for members' use.

Subscriptions were due on the 2nd October, and should be paid to the Treasurer, Mr. Frederick Park, 52, Collingwood Street, Newcastle.

The Council are earnestly requested to meet at 7 p.m. to discuss important business.

Leeds Photographic Society.

Ordinary Meeting.—Mr. **Godfrey Bingley** in the Chair.

After the ordinary business was concluded, Mr. **Herbert Denison** read a paper on "Photogravure." In a very lucid manner he described the whole process from negative to finished print. He passed round negatives, tissue, and copper-plates in the various stages of manipulation, and showed that this very beautiful and permanent process was within the reach of all.

Mr. **Bownes**, one of the members who has taken up this process, also showed some very pretty pictures.

Mr. **Ramsden** showed one produced thirty-five years ago.

Questions were asked as to cost of production, &c., which were answered. An interesting conversation followed, and, at the close, a hearty vote of thanks was given to Mr. Denison for reading the paper, which he had previously read to the Affiliated Societies of the P.S.G.B., with so much interest to them.

Hexham Photographic Society.

Quite an interesting meeting of photographers took place on the 21st ult. at Bardon Mill, when the Hexham Photographic Society held with the Newcastle Photographic Association their last outing of the season. The party was under the leadership of Major J. P. Gibson (President of the Newcastle and Northern Counties' Photographic Association), and was quite representative of North country photographers, and those interested in photography, both amateur and professional. Amongst those present were: — Captain Jasper Gibson, St. Wilfrid's; Mr. B. Gibson, Acomb House; Mr. M. Auty, Tynemouth; the Misses and Master W. W. Gibson, Battle Hill; Mr. Brown, Mr. Parsee, Mr. Gardner, Mr. Pratt, Mr. Snowball, and others of Newcastle: Mr. T. W. Milburn, Mr. J. W. Crozier, Hexham, and Mr. J. F. Russell (hon. sec. Hexham Photographic Society), and Mr. Edgar G. Lee (hon. sec. Newcastle Photographic Association), by whom the preliminary arrangements were carried out most successfully. Leaving Bardon Mill, the party visited Beltingham Church, and then proceeded to the lovely woods at Ridley Hall, permission having been kindly granted by the Hon. F. Bowes-Lyon. The scenery here was much admired, and the Tarn was both unique and picturesque. Leaving Ridley Hall woods, the party proceeded to Plankey Mill and Staward-le-Peel, and then visited the iron gates and the blasted oak, which have been immortalised by Mr. Gibson in some of his finest art productions. After spending a most enjoyable day, the weather being most favourable for photography, the party left for Staward, where they had tea. The outing was enjoyed by everyone, and on the return journey to Hexham and Newcastle, the members all hoped to have good results to show at some future time illustrating an outing on the Allen.

Birmingham Photographic Society.

Ordinary Meeting, October 3rd.—Mr. J. T. Mousley in the Chair.—Forty-five members were present.

Mr. Smith, of the Platinotype Company, gave a practical demonstration of the working of the process in all its branches. Mr. Smith developed prints on the hot bath, cold bath, and for sepia tones, which latter were especially admired. Prints made on various textile fabrics were also developed, and some marvellously beautiful finished results were shown, all present agreeing that this was a remarkable application of the process. Mr. Smith also showed the working of the special printing lamp, a proof being ready for development in ten seconds. The lecturer having kindly answered numerous questions, a hearty vote of thanks was accorded to him and to his firm.

The following solution is recommended by Dr. Menière, of Paris, for removing green, yellow, or red fog: Soak the negative for five minutes in water, and immerse in

Bromide of sodium	3 parts.
Bromine water	3 „
Water	100 „

Allow it to remain in this bath for ten or fifteen minutes, when the image will be bleached and must be redeveloped with an amidol-sulphite developer.

A one-half per cent. solution of borax is recommended by M. Ommeganck as an efficient hypo eliminator for prints. Subsequent washing in water is of course necessary to remove the excess of borax, but, as the original solution is very dilute, this would not be troublesome or tedious.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Inquirer.—A good varnish for films is that suggested long ago by Mr. Ashman, of Bath. It consists of equal parts of japanners' gold size and benzole. This, of course, must be applied cold, and not in proximity to flame or fire.

F. A.—The method of enlarging must depend upon the consideration whether a number of copies are required or only one or two. In the latter case we should certainly advise you to adopt the bromide paper process, but in the former an enlarged negative is the best thing to aim at. There are many ways in which this may be done, and none better than the wet collodion process if you are acquainted with it.

D. O'C.—A carbon print should be as permanent as a platinum one, but it is evident that under certain conditions not likely to arise, such as exposure of both prints to a very damp atmosphere, the carbon print would go owing to the presence of gelatine, while the platinum would remain. Practically both pictures are as lasting as the paper upon which they are made. The other processes mentioned cannot be named in the same category.

T. T.—We should be inclined to recommend a hand camera for ship-board work in preference to any instrument supported by the bulwarks, or hanging to the rigging of the vessel. Under such circumstances we have secured pictures showing no trace of movement even in a rough sea, but the work requires practice.

Inquirer.—You will see that in our last issue Mr. Bergheim describes the way in which his medal picture at Pall Mall was produced.

J. J.—Choose the camera which has an attachment for glass plates. At present we would not advise you to be wholly dependent upon films, although under certain conditions they are invaluable.

Saxon.—(1) A drawing in Indian ink and Chinese white will photograph a little lighter than the original, and for process work this is inconvenient. By mixing a trace of burnt sienna with the colour this is obviated. (2) A useful book on line drawing is published by Winsor & Newton, artists' colourmen.

J. K.—Simply a matter of individual opinion about which it it is not worth while raising a discussion.

S. (Reading).—Roughly speaking an electric light suitable for lantern work should give five times the brilliancy of a lime jet. This was the estimate obtained at the Photographic Exhibition at the Crystal Palace when the two lights were tried side by side.

T. M. M. (Southgate).—We have forwarded you a reply by post.

S. H.—We shall give an article on the subject in the forthcoming Year Book.

The depth to which the sun's rays penetrate water has been recently determined by the aid of photography. It has been found that a depth of 553 feet the darkness was to all intents and purposes the same as that on a clear but moonless night. Sensitised plates exposed at this depth for a considerable length of time gave no evidence of light action.

PATENT OFFICE

THE PHOTOGRAPHIC NEWS
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1833. OCTOBER 20, 1893.

NOTES.

THE event of the past week has been the Congress of the Photographic Society of Great Britain and Affiliated Societies, and it must be pronounced a success in every way. Large audiences assembled to hear the papers read, and much interest was manifested in the various subjects dealt with.

THE *pièce de résistance* was naturally the colour photographs of M. Lippmann, as improved or modified by M. Lumiere. We do not exactly know how far the latter worker is to be credited with the good results achieved, but we believe that it is to his initiative that the pictures were exhibited by the electric light. Without that aid, they are ineffective; with it, the most brilliant effects are produced.

THE apparatus used at the Society of Arts was of a makeshift character, and, owing to some misunderstanding, the dynamo on the premises was not available, so that difficulties seemed to multiply when it was required to show M. Lippmann's pictures. Luckily, Captain Abney was able to come to the rescue with a battery of sixty Grove cells, and, under his personal supervision, the demonstration was most effective.

THE electric (Brockie-Pell) regulator was enclosed within a lantern fitted with a condenser, in the beam from which was placed a carrier to hold M. Lippmann's pictures. A portrait lens conveyed the image to the screen, and the result was a picture which approximately showed all the colours of nature. Perhaps one of the most successful pictures was one of a chemist in his laboratory, surrounded by bottles, one of which contained a fluorescent liquid. In another picture, flowers in their natural colours were clearly marked springing from the grass. There were seven pictures in all, and the enthusiasm which they raised was remarkable. The thanks of all photographers are certainly due to Mr. Warnerke, who was instrumental in bringing M. Lippmann's pictures from Paris. They were shown on the following night at the Camera Club, where again it was the general opinion that a great thing had been achieved by M. Lippmann.

WE publish this week an abridged report of some of the papers brought before the Congress, and shall follow with others on a future occasion.

MR. T. C. HEPWORTH lectured for the third time at the Goldsmiths' Institute, New Cross, on Saturday last, his subject being "Footprints of Charles Dickens." The lecture was illustrated by about one hundred photographic pictures, and the audience numbered between two and three thousand persons.

WE understand that the arrangements for the forthcoming International Exhibition at Bristol are proceeding apace, and that filled-up entry forms are coming in as rapidly as the Committee could wish.

THE Stanley photographic competitions in connection with the seventeenth annual exhibition of cycles, &c., will be held at the Royal Agricultural Hall, Islington, from November 17th to 25th inclusive. Anyone wishing his Pall Mall pictures to enter for these competitions should notify the fact to Mr. W. D. Welford, who has the management of the Photographic Section of the Stanley Show.

"PROBABLY the last line engraving which will be published in this country unless the art is revived in the future." This is what Messrs. Virtue say of the engraving of Holman Hunt's "Finding of the Saviour in the Temple," which will presently appear in the *Art Annual*. Photogravure has now reached such perfection that it has superseded the old method of working, and line engraving is no more. This must be regretted by all lovers of art, but will be welcome news to collectors, whose "proofs before letters" will increase in value as time rolls on.

The opinions of the Photographic Exhibition one meets with in the various periodicals vary according to personal views held by the critic. Photography has the knack either of exciting enthusiasm or of raising bile. Some people cannot approach the subject calmly and without prejudice as one approaches a picture. All that one leading Society paper can find to say is that once in three months or so a method of photography in natural colours is discovered, but that the Photographic Society knows nothing about it. We are also told that "the boom in amateur photography has reached its climax, and is now on the decline. For this relief much thanks." How does the Exhibition prove this? It looks as if this unfortunate critic had an amateur in his family who has come down heavily upon him for sittings.

A good deal of quiet photographic work is going on of which the world knows very little. Take the meteorological photographs for instance. At the conference of delegates of corresponding societies, held under the auspices of the British Association, Mr. Symons, who has the subject in charge, had virtually to ask the workers in cloud effects to hold their hands, as the committee appointed for the elucidation of meteorological phenomena by the application of photography had already the considerable collection of 1,167 to deal with, only one hundred of which they proposed to use as being typical. What the Committee does want, however, is additional photographs of lightning. The geological photographers are, it would seem, not quite so active. Still the section had received forty new photographs, making the total collection 846.

"The Kodak at the Piccadilly Fountain" is the very misleading title of a column article in the *Globe*. Naturally. with such a title, one expects to find something about photography, but as a matter of fact the article could have been written by anyone without the assistance of the camera. We suspect the object of the writer is to poke fun at the waterless fountain by showing what curious pictures of disappointed, thirsty souls could be taken by anyone who really was around with a kodak.

The late Mrs. Julia Margaret Cameron was exceedingly fortunate in her sitters. Some of the foremost men of the day had sat to her, and her extraordinary energy and enthusiasm enabled her to triumph over her lack of technical knowledge. The twenty-five photographs just published under the title of "Alfred, Lord Tennyson, and his Friends," comprise a good deal of her best work. Undoubtedly she had great originality, but when one remembers the enormous number of pictures she produced, and the few, comparatively speaking, which were successful, one is tempted to inquire whether some of these were not what is termed "flukes." But then, working as she did in the slow collodion days, and, being satisfied with nothing which was not big, she courted failure, and the marvel is not that she produced many striking pictures, but that she produced any pictures worth looking at. But her own perseverance and the amiability and patience of her sitters enabled her to surmount many difficulties.

It seems strange, in these days of instantaneous photography, that a prisoner should be able to baulk an operator by his struggling and contortion of the features. This, however, seems to have been the case at Chelmsford, and, in despair of taking the man by ordinary methods, the photographer made preparations for securing his portrait when he appeared before the magistrates. The camera was placed behind a desk which had a hole cut in it for the convenience of the lens, and so the prisoner was photographed as he stood in the dock. The story may be true, but, to use a convenient phrase, it wants confirmation.

We have lately had the opportunity of working with the "Paragon" detective lens (Jena glass), which Messrs. Swift have produced. It has a wonderfully flat field, is rapid in action, and gives an image full of detail. It is well worth the attention of hand-camera workers, for whose benefit, indeed, it has been designed.

Postage Stamp Gum.—The gum used on the back of postage stamps by the United States postal authorities consists of two parts of dextrine, one part acetic acid, five parts of water, and one part of alcohol. Mix the acid and water, dissolve the dextrine in the mixture, add the alcohol, and mix thoroughly.—*Nat. Drug.*

Dextrine in Gums.—To detect dextrine in gums, Professor Pietro Palladina heats the sample to ebullition for a minute with aniline sulphate, chloro-brucine, pure brucine, orcine, or orceine. With these re-agents, pure gum in a potassic solution gives a pale straw colour, which becomes a little greenish, whilst gums containing dextrine take a yellowish orange or a brownish red colour.

ENLARGING BY DAYLIGHT.

BY H. C. R. HARLEY.

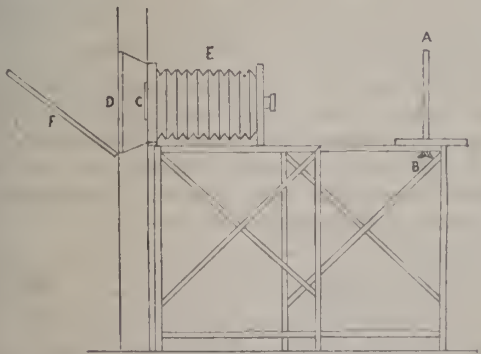
ENLARGING is one of the most fascinating and interesting branches of photography. It is, moreover, by no means difficult work. This does not, however, mean that from every negative one possesses a good enlargement can be made ; but many negatives which are thin, from perhaps over-exposure or other causes, yet sharp and full of detail, will give excellent enlargements on bromide paper, although they may be of no use for printing on albumenised paper.

The introduction of bromide paper for enlarging has, within the last few years, opened up a comparatively new field of enterprise for the amateur photographer ; this is due in a great measure to the simplicity of the process, and the permanent character of the results obtained by it.

Of the two methods of enlarging—viz., by daylight and by artificial light—the former only is here treated, as being easily worked and presenting but few difficulties ; and the process here given is the one which has been successfully followed by the compiler of this article, who gained his knowledge by consulting several periodicals, annuals, and works on photography. The principle upon which enlargements are made is briefly as follows :—

Rays of light are transmitted through a negative, an image of which is projected for a certain length of time on a sheet of sensitised paper by means of a lens placed in the path of the rays, and then developed, fixed, washed, &c.

The first essential in making an enlargement is to secure a room to work in, which, if possible, should face the north, and have a window or opening on that side ; the next thing is a table, which should be about eight feet in length, and a little wider than the largest picture which may be required. This table should be of such a height that the centre of the negative, when placed in position in the window, and the axis of the lens of the camera on the table, are in a line. The table should have at its end furthest from the window an easel attached, to which is fixed the sensitive paper on which the enlargement is to be made.



The table used by me is in two pieces, and the focussing is first performed by sliding in, or pulling out, the front part of the table, and finally by the milled headed screw of the lens. But, should the table be in one piece, it should have at its end furthest from the window, and for a length of two feet or so, a slot cut in its middle, to enable the easel (A) to traverse backwards or forwards ; to the easel a clamping screw (B) should be attached, so that, when the required adjustment has been made, it may be clamped tight and kept in that position ; as a further precaution, two strips of wood should be fixed at either side of the table, which will prevent any movement of the easel. The sketch above shows the table both as a sliding one, and, in the event of its being in one piece, the slot and side pieces as recommended.

The focussing should be first done on a sheet of white paper fixed to the easel, a sheet of bromide paper being afterwards substituted for it. As the negative to be enlarged should be well and equally lighted, it is necessary to have for this purpose a reflector (F) on the outside large enough to illuminate the negative thoroughly, and which can be of white cardboard or a mirror glass fixed at an angle of 45°, and controlled from the inside by a string. As no light but that which passes through the negative should enter the dark room, it is necessary to close the whole of the window effectually, except a portion which should contain a frame. This frame should have on the outer side a groove for a ground-glass (D), 12″ × 10″ in size, and on the inner side, leaving a space of four or five inches from the ground-glass, an arrangement (C) for carriers to fit from the largest to the smallest size negative to be used.

The negative to be enlarged should be well defined, and full of detail, with sharp definition, and with a slight tendency to thinness ; fix this in the carrier in the window with the film side towards the lens, and upside down. Then take your camera (I use the one with which the negative was taken), and taking out the focussing glass, push it up as near as possible to the negative, the lens pointing to the easel, and shut out carefully all light at the junction of the camera back and window ; and, having decided on the size of the enlargement, fix your lens and easel in position in accordance with the following formula—viz., multiply focus of lens by one more than the number of times of enlargement required. This will give the distance from lens to enlargement ; then divide the product by the number of times the negative is to be enlarged ; this will give the distance from lens to negative. For instance, suppose you are working with a lens of 12-inch focus, and wish to enlarge your negative four times ; then $12 \times 5 = 60$, or 60 inches is the distance of lens from enlargement or easel, and $60 \div 4 = 15$, that is, 15 inches, is the distance from the lens to negative. Now focus sharply and accurately the image thrown first on a sheet of white paper pinned to the easel, and see that it is evenly and well illuminated ; then cap your lens, insert the necessary stop, substitute a sheet of bromide paper for the white, uncap and expose.

To ascertain the correct exposure, expose and develop a small strip of bromide paper on that part of the picture containing the greatest contrasts ; do this a few times, till correct exposure has been attained, and regulate subsequent exposures from that negative by the result.

Should it be desired to vignette an enlargement, cut a suitable aperture in cardboard, and allow the rays to pass through it, moving the card to and fro between the easel and lens during the exposure.

Alpha paper may also be used for enlarging, and yields prints of very pleasing tones, either with or without toning, to develop which, the instructions sent out with the paper, if followed, will give excellent results.

Several developing formulæ are given at the end of this paper, all of which are well and highly recommended.

The paper, after exposure and before development, should be soaked in water till quite limp; the water is then thrown off, and the developer poured over it. Should the exposure have been correct, the picture will appear in a minute or so, and gradually gain density and detail. After the image is well out, pour off the developer into a separate vessel for use again, and, without washing, flood the print with the clearing solution; let it soak for, say, a minute, then throw it away, and repeat the dose a couple of times. The picture should now be well washed and fixed in the usual way. The object of the clearing solution is to prevent the precipitation of the iron in the oxalate of potash and iron developer on the film of the paper, and this can only be done by keeping the paper acid whilst washing out the developer.

Should the picture have been over-exposed, it will flash up quickly under the action of the developer, which should in that case be instantly poured off, and more bromide added to it, and the development continued. The image on a correctly exposed print should appear gradually, and should never stop appearing; and provided that details keep on appearing, they cannot come up too gradually, provided they follow each other steadily.

The following general rules by Mr. Andrew Pringle are inserted, as they are worth remembering and following:—

"Long exposure tends to softness or harmony; overdone, to flatness, fog.

"Short exposure tends to brilliance, pluck; overdone, to hardness, want of detail, 'chalk and soot.' In development: Plenty of iron in ferrous oxalate tends to good rich blacks; overdone, to harshness; weak iron gives more softness; overdone gives poor or even 'mealy' prints.

"Bromide in minute quantities slows development, and tends to richer shadows and purer whites; overdone, produces hardness, often bad colour, and even sometimes gives a nasty 'grain.'

"With quinol developer the latitude is great, the chief point being to give plenty of exposure, but to make development slow. In such a case we can almost do as we like with our print, but over-exposure and rapid development give ugly colour to the details.

"If we have to print a very dense negative full of violent contrasts, our best course will clearly be to give a long exposure, and develop with ferrous oxalate weak in iron. *Per contra*, a 'ghostly' negative may be made to yield even a hard print by very short exposure and brisk development with a large proportion of iron to oxalate, and the bromide may be above the normal in quantity. With any negative of average quality we can make two prints wholly dissimilar in quality, yet both good of their kind."

Developers.

1.—Recommended by Mr. W. Chadwick.

Oxalate Solution.

Neutral oxalate of potash	1 lb.
Distilled water	50 oz.

Add sulphuric acid sufficient to turn blue litmus paper slightly red.

Iron Solution.

Sulphate of iron	½ lb.
Distilled water	15 oz.
Sulphuric acid	15 drops.

Bromide Solution.

Bromide of potassium	1 dr.
Distilled water	10 oz.

Clearing Solution.

Acetic acid	1 dr.
Water	30 oz.
Alum	6 dr.

Fixing Solution.

Hyposulphite of soda	3 oz.
Water	20 ,,

After exposure, flood the paper with water, and rub it gently with a pledget of cotton wool. Drain the paper and apply the developer. A good normal developer will be—

Oxalate solution	6 parts.
Iron solution	1 part.

A few drops of bromide solution—1 drop for each ounce.

Note that the iron should be added to the oxalate, and not *vice versa*.

For prints from hard negatives showing great contrast, the proportion should be 12 of oxalate to 1 of iron solution. As soon as development is complete, flood the paper without washing with the clearing solution, allow it to remain on a minute or so, and repeat the dose twice. Then wash the prints well for some time and fix for fifteen minutes, then thoroughly wash for some hours and hang up to dry. If, after fixing and washing any discolouration appears, flood the print with a solution of sulphuric acid, ½ ounce, water 40 ounces. After ten minutes wash again thoroughly and dry.

2.—Recommended by Mr. Percy Morris.

No. 1.—Oxalate of potash	1 lb.
Distilled water	40 oz.

Add citric or oxalic acid till it slightly reddens litmus paper.

No. 2.—Sulphate of iron	5 oz.
Citric acid	38 gr.
Distilled water	12 oz.

No. 3.—Bromide of potassium 10 per cent. solution.

For a normal developer—

Add one part of No. 2 to six or eight parts of No. 1, according to density of negative, and half a minim of No.

3 to the ounce of solution used. Be careful to mix in the order named. If a vigorous print is desired, use a developer strong in iron and oxalate. If contrasts require subduing, add one part of iron to five or six parts of oxalate, and dilute with a quarter of its bulk of water. *Expose fully* and keep development well in hand, adding bromide or water to check over-exposure. In bad cases, pour off the developer and flood print with water for a time, then proceed with a developer which has been used several times. After development, and before washing, flood the print three or four times with a clearing solution of acetic acid 1 drachm, water 40 ounces. Wash well and fix in hyposulphite of soda 3 ounces, water 20 ounces, for fifteen to twenty minutes. Wash thoroughly and hang up to dry.

3.—Recommended by Mr. A. Pringle.

1.—Saturated solution of oxalate of potash made slightly acid with acetic or oxalic acid.

2.—Saturated solution of sulphate of iron made acid with at least 10 minims of sulphuric acid to a pint of solution.

A normal developer will be—

Oxalate solution	6 oz.
Iron solution	1 oz.
Bromide potassium	4 grains.

A strong developer would be 1 of iron to 4 of oxalate. A weak developer, 1 of iron to 10 of oxalate. Clearing and fixing as above.

4.—For use with Eastman Company's Permanent Bromide Paper.

No. 1.—Oxalate of potash	16 oz.
Hot distilled water	48 oz.

Acidify with citric or sulphuric acid.

No. 2.—Protosulphite of iron	16 oz.
Hot distilled water	32 oz.

Citric acid ¼ oz. (or sulphuric acid ½ dr.)

No. 3.—Bromide of potassium	1 dr.
Distilled water	4 oz.
To develop, take of No. 1	6 oz.
,, ,, 2	1 oz.
,, ,, 3	½ dr.

Mix in order given. After exposure soak paper in water till limp, then immerse in developer. When developed, flood print without washing with the clearing solution of acetic acid 1 drachm, water 32 ounces. Allow it to act for a minute, pour off and repeat this twice, then wash and immerse for quarter of an hour in fixing solution of

Hyposulphate of soda	3 oz.
Water	16 oz.

After fixing, wash thoroughly for several hours and hang up to dry.

5.—Formula by Mr. James Colgrove, a member of the Chicago Camera Club :—

No. 1.—Hydroquinone	of each 90 grains.
Eikonogen	
Metabisulphite of potassium	
Distilled water to make	16 oz.

No. 2.—Carbonate of potassium	of each 1 drachm.
Carbonate of soda	
Yellow prussiate of potassium	
Distilled water to make	2 oz.

For use—Take distilled water	8 oz.
No. 1	8 oz.
,, 2	1 oz.

After development wash and fix in hypo 3 ounces, water 20 ounces. Wash well for some hours and hang up to dry.

6—Recommended by Mr. Percy Morris :—

No. 1A.—Hydroquinone	80 gr.
Sulphite of soda	1 oz.
Bromide potassium	15 gr.
Distilled water	10 oz.
No. 2B.—Hydrate potash	½ oz.
Distilled water	7½ oz

For normal developer take one part of No. 1 A and dilute with 3 parts of distilled water, and begin with ½ drachm of No. 2 B to every ounce of above. Add more of No. 2 B as required, up to 1 drachm to the ounce. To get vigour increase the hydroquinone. Softness can be obtained by exposing fully, diluting No. 1 A with four or more parts of water, and using but little alkali. Over-exposure should be checked by adding water to the developer, not bromide. For under-exposure bring the alkali to full strength at once, but *keep down the hydroquinone*, or chalkiness will result. Rinse well and fix in hypo 3 ounces, water 20 ounces. Wash well and hang up to dry.—*Journal of Photographic Society of India.*

THE CAMERA AND THE PULPIT.

BY REV. DR. A. W. PATTEN.

THE art of writing or recording by means of light, which we understand by "photography," has come to be recognised as one of the most valuable instruments of modern civilisation. There is scarcely a line of human achievement which has not found in it a servant whose assistance has become indispensable in bearing old burdens and in assuming new ones. Especially is this the case in the wide field of education. Intellectual culture and moral culture both have found it profitable and necessary to lay tribute upon the photographic camera and upon its necessary adjunct, the optical lantern.

In all education the true method is to proceed from the concrete to the abstract—from the objective to the subjective. This is true not only in school life, but in the larger education of the masses of the people. It is interesting to notice the vast development of the illustrated material now presented to the public in the periodical press as well as in the stately volume. Hardly a daily paper do we find which does not boast of its special artist, and every subject must have its appropriate woodcut, engraving, or photogravure. This has been brought about to a great extent by the use of the camera, by which the vast majority of this illustration is made possible.

General science, the fine arts, commerce, the secular school, have all invoked the light of heaven to shine upon them. Why should not the teacher of religion also invoke the aid of this servant of God to render vivid and clear spiritual truth?

The camera has received a hearty welcome into the studio, the manufactory, the school-room, the lodge-room. It has also received a like welcome in recent years into the Church. Religion has its basis in history. It expresses its symbols in art. The earliest forms of architecture as well as the highest expressions of art are religious in their motive. The temple became the repository of all that was most glorious in sculpture and painting. The history of the religions of mankind cannot well be studied without a knowledge of the monuments of past civilisations.

In recent years there has been a great advance in the study of archæology. Here the camera has come in as a large factor. The growth of the study of history has been very great, and the study of comparative religions has been a part of the general historical movement.

In the teaching of the life and history of the Church the pulpit cannot do without the camera. Christian art and archæology go hand in hand. The inscriptions are best copied now by the camera. Many places there are where the use of the squeeze paper and brush are indispensable, but in most instances photography saves labour and accurately preserves the record. In the study of the remains of the early centuries of the Church, the religious teacher finds that the picture made on the spot is the best means of rendering clear and vivid the thought he wishes to present. The work done by the Palestine Exploration Fund and the Egyptian Exploration Fund within the past twenty-five years has brought to light a vast lot of material whose richness and importance as contributions to the study of the religious life of these countries is simply inestimable. Thus the study of the Christian Evidences from the standpoint of archæology, the study of the religions of antiquity as preserved in their monuments, the study of the development of Christian art as found in the catacombs and elsewhere, is rendered possible and exceedingly valuable by the rich fruits of the camera.

The Christian missionary to foreign fields now goes to his work armed with his camera and optical lantern. He has found that the masses of the people are attracted by the pictorial presentation of Bible themes. In the great "Melas" or fairs held in various parts of India may often be found in the midst of the thronging thousands the tent of the missionary, who attracts the attention of the people by his screen projections and gains audience for the truth which is thus carried through the eye to the heart.

The teacher in the modern Sunday-school has likewise added to his maps and charts the aid of photography to educate his fellow-workers. To reproduce a map, to illustrate the life of our Lord or the journeys of His apostles, to bring before the people the manners and customs of Bible lands, the beam of light as a swift-winged messenger comes to his aid. In studying recently the Book of Nehemiah and his great reform, during which he built up the dismantled walls of Jerusalem, discussion turned upon the course of the walls and the general topography of the city. From views taken on the spot with my own camera a few months ago, it became possible to illustrate the subject in such a manner as to invest it with the utmost reality and vividness.

In the ordinary ministrations of the pulpit the camera is coming to be recognised. Under certain circumstances and on given occasions the use of the screen projection is assuredly a powerful adjunct. Its use may, of course, degenerate into a mere spectacular performance which is only a common show; but in proper hands beneficent and lasting results must certainly follow. A pastor in England affirms that through one of his illustrated sermons, delivered at various places, over three hundred persons have been roused to lead a better life. The illustrated sermon may have as real dignity and effectiveness as the illustrated volume, and be more impressive because of the added element of personality.

The existence in England of what is called the "lantern service" is well known. Illustrated themes are published and slides are rented. Considerable space was given to this subject some months ago in the *Review of Reviews*, the article being from the energetic pen of Mr. W. T. Stead. In this country the interest in this kind of work has greatly augmented within the last ten years. Some of our churches are now provided with apparatus for this purpose. One church recently built in Chicago has a laboratory for the manufacture of the gases, and the pastor, who it is needless to say, is a thoroughly live man, has great success in presenting the truth thus illustrated to his people. Another church, in Minneapolis, I believe, is provided with a screen, stereopticon, &c., all at the control of the pastor by means of electric communications. If he desires while preaching to illustrate his subject, he may by pressing the respective buttons unroll the screen, turn out the lights, and signal the operator for the picture. What is more, in many of our theological schools may be found a complete optical outfit for the purpose of teaching Christian art, architecture, paleography, and the latest results in exploration and discovery in Bible lands.

All this serves to illustrate the statement that "Science is the handmaid of Religion," and none are so ready to acknowledge this as the Christian teachers. Many clergymen are expert amateur photographers, and are finding the camera a valuable adjunct in their work. It must not be understood that the illustrated sermon is in any sense to supersede the ordinary service of the Church, but to find its place in specific lines, as above indicated. The Church is more and more to use the camera—(1) to teach Christian art and archæology; (2) in work in the foreign mission-fields; (3) in the Sunday-school and normal work; (4) in special services to children; (5) in evangelistic services among the masses; (6) in providing a high class of instruction along the line of art and history.—*Read at the World's Congress of Photographers.*

HACKNEY PHOTOGRAPHIC EXHIBITION.

THE Exhibition of the Hackney Photographic Society, which was opened on Tuesday last, at the Morley Hall, Hackney, by Sir Charles Russell, is undoubtedly a very great advance upon its predecessors, good as they have been. There are about 600 pictures, which are hung in well-lighted alcoves ; and of this large number there are few which are bad.

The medals, about twenty in number, have been awarded by the judges—Col. Gale, Mr. F. P. Cembrano, and Mr. Debenham—as follows :—The Championship Gold Medal has fallen to Mr. Samuel J. Beckett, for his picture, "Evening, Verona, North Italy," No. 132, printed in a burnt sienna tone. Mr. W. A. J. Hensler carries off the silver medal for his "Reflections, Tasmania," a very pretty little picture, one of three in a frame, showing nice atmospheric effect and careful selection of view. No. 88, another good landscape, wins the other silver medal in this class (A) for Mr. C. H. Pollard. In Class B—hand-camera pictures—Mr. Robert Beckett takes a silver medal for his (No. 217) "Sunset, Trondhjem." The catalogue says it is a sunset, otherwise we should have thought it was a moonlight picture gone wrong. Though the sun is still many degrees above the horizon, the picture is as dark as night. It is enlarged, apparently, on bromide paper, and toned to the colour of bloater paste. The bronze medal is taken by a little picture (No. 164) about three inches square, entitled, "Pelicans at the Zoo," by Mr. F. E. Roofe. In Class C, for pictures taken at club outings, the silver medal is withheld. The bronze goes to Mr. F. W. Gosling for No. 276, a small, brown, and gloomy—yet withal very effective—little picture, called "River Roding." In Class D—lantern slides—the silver and bronze medals are awarded respectively to Mr. J. J. Beckett and Mr. W. A. J. Hensler. Class E—open class for unmedalled pictures—the silver medal is taken by Mr. J. B. B. Wellington for No. 310, "A still delight steals o'er the earth." This is more like an etching than anything else, and not much like that. No. 360, labelled "A Landscape," wins the bronze medal for Mr. W. M Warneuke. It is a really fine picture of three girls picking wild flowers in a sunlit meadow. The figures are well arranged, and form an harmonious whole, which contrasts pleasantly with the sombre-hued pictures near at hand. Two other pictures, also called "Landscapes," by the same photographer, show equal care and thought and a happy selection of models. One, No. 361, represents a milkmaid standing near a quiet brook, with beautiful reflections in the water of the glittering light from the setting sun. In Class G (there were no awards made in Class F), Mr. J. B. B. Wellington is again to the fore with his picture "Eventide," which wins for him this time a gold medal. The silver medal was not awarded. Class H, the last, consists of lantern slides, which are well arranged on a hexagonal screen lighted from within. These are, almost without exception, exceedingly good. Mr. W. England takes the silver medal, while the bronze is carried off by Mr. A. Brooker. An extra bronze medal is deservedly won by Mr. W Taverner.

The apparatus, of which there is a very complete show, has mostly been noticed in our columns in connection with the Exhibition at Pall Mall.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

18,412. JETHRO MARSH, 49, Aytoun Road, Stockwell, London, "Improvements in Detective Cameras."—*October 2nd*, 1893.

18,436. EDGAR HENRY FITCH, 34, Angell Road, Brixton, London, "Improved Photographic Camera for Automatically Exposing, Changing, and Storing Celluloid Films."—*October 2nd*, 1893.

18,595. HENRY HILL and ARTHUR LEWIS ADAMS, 34, Southampton Buildings, Chancery Lane. London, "Improvements in Folding Photographic Cameras."—*October 4th*, 1893.

18,685. HENRY HILL and ARTHUR LEWIS ADAMS, 34 Southampton Buildings, Chancery Lane, London, "Improvements in, or in connection with, Photographic Cameras for use with flexible sensitive surfaces."—*October 5th*, 1893.

18,823. ALPHONSE ALEXANDRE FIORET, 35, Southampton Buildings, Chancery Lane, London, "Improvements in Apparatus for taking Photographic Pictures."—*October 7th*, 1893.

Specification Published.

16,177. *September 15th*, 1893.—"Photographic Washing Apparatus." F. ALSTON, 211, Ladypool Road, Sparkbrook, Birmingham.

The apparatus consists of a straight tube with a taper nozzle fixed at a right angle to the bottom thereof and a syphon, the short arm of which is just over a small hole in the upper side of the nozzle, while the long arm hangs down outside, and a spring holds it firmly in position. When the tube is connected with the water supply by a piece of rubber tubing, most of the water rushes out at the nozzle and causes the water in a bucket to revolve, whilst a fine stream from the hole causes water in tube to rise above level of that outside. When this reaches the top it flows down the long tube and starts action of syphon. If, however, the water falls too low in the bucket, the air is admitted through the hole and the action ceases until the water rises to a sufficient height to restart it. The bottom of the tube is surrounded by a piece of perforated zinc, which prevents the prints being drawn into the syphon.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Herbert Haddan & Co.

AT the Hackney Photographic Exhibition, Messrs. Platte & Witte show a new form of single lantern. It is fitted with a bellows front and a very small jet. Its great portability should recommend it to all in search of a small, efficient lantern.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, OCTOBER 20, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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THE PALL MALL AWARDS.

THE circumstance has often been noted, but, so far as we are aware, no scientific explanation has yet been found for the phenomenon, that a stud, preferably a collar-stud, if accidentally dropped in the middle of a room, will stray into the most remote and unlooked-for quarters. The medals awarded at photographic exhibitions are also sometimes found to possess this vagrant property, and instead of finding their way to those whose pictures would seem to merit recognition, they stray away in the most unexpected directions. We do not for one moment suppose that any judges would be so careless of the trust committed to them as to purposely drop a trayful of medals in the middle of a gallery floor, leave them to roll collar-stud fashion towards the walls, and to give awards to the pictures under which the medals were eventually discovered; but in many cases the apparent want of care in selecting the pictures to be honoured would almost warrant the assumption that some such game of chance had been practised.

There is a general feeling that at the present Pall Mall Exhibition certain pictures have been medalled which are not deserving of such distinction. Any one who has had the opportunity of spending some hours in the gallery, if he have an appreciation of the difficulties and possibilities of picture-making by photography, must feel amazed that certain pictures there should bear the coveted label. We need not specify which pictures we here refer to, for they are such poor examples of photographic workmanship that they are easily recognised, more especially as they bear such a sad contrast to other works which, it is agreed on all hands, most thoroughly deserve the honour conferred upon them.

Judges at exhibitions have, as a rule, no easy task before them. If the number of entries is small it is another matter, for out of thirty or forty frames it is not difficult to pick out two or three which merit distinction. But when the numbers run to hundreds, even when half the total sent in have been rejected, the judges, with every desire to be impartial, find a task before them which it is next to impossible to carry to a successful issue. Fancy what an anxious and responsible business it must be to select from several hundred pictures half a dozen or so which possess qualities entitling them to special recognition. It would be difficult enough to do this if time were given for a thorough examination of each work; but as a rule the judging is done in a day, or oftener still in an afternoon. The task is one which is far too great a tax for any ordinarily constituted mortal, for the eye and brain very soon get wearied, and the judgment fails.

Now, why should the judging of photographs at an exhibition be always a preliminary operation? Would it not be far better if it were delayed until, say, a fortnight after the opening of the doors? Of course the best men available should be selected for the work; but they should be men who possessed the necessary leisure to visit the exhibition time after time, and to thoroughly master the merits of each work hung. A committee of selection might be appointed in the first instance to say which pictures should be hung and which rejected. It would be preferable for many reasons not to publish the judges' names, so that each, unknown to the others, would be making his selections. A day could then be appointed when the judges would meet, when they would compare notes, state reasons for their individual preferences, and finally agree—putting any matter of dispute to the vote—as to the destination of the medals.

It may be argued that this proposal would not work out in practice because the minds of the judges might be influenced by the opinions of others. This, we think, is an argument rather in favour of the course suggested. The judges certainly would not be likely to be influenced by any outsider whose opinions were worthless; but we can easily imagine a case in which a judge, who had mentally fixed upon a picture as being worthy of an award, might have his attention called by some expert to a weak point which he had overlooked. A case of the kind came under our notice some time back, where three judges out of four were about to medal a picture, when the fourth, who had singularly keen eyesight, pointed out that the work had been elaborately but skilfully worked upon with brush and colour.

We commend the plain which we have here very inadequately sketched out to the attention of organisers of photographic exhibitions. It may be open to objections which we have not realised, but many will, we feel convinced, think it worthy of consideration.

THE PHOTOGRAPHIC CONGRESS.

As reported in our last issue, the Photographic Congress of the Photographic Society of Great Britain met at the Pall Mall Exhibition on Tuesday, last week, when the proceedings were opened by Captain Abney's presidential address. On the following day, the Congress met at the Theatre of the Society of Arts, in the Adelphi, when the first paper on the programme was by Mr. Pringle, who took for his subject,

"The Present Position of Photo-micrography." The following is an abstract of the paper :—

If any departure or great advance had taken place in the past few months, my remarks to-day would be far more interesting and acceptable to you than they are likely to be. As a matter of fact, no such advance has manifested itself, and I must therefore content myself by considering the present position of photo-micrography, the principles upon which the work is at present conducted, and the nature of the apparatus employed in carrying out that work.

As to the present position of this branch of photography, I have nothing to tell you but what is of the most encouraging nature. The number of scientific laboratories and institutions which are adopting this method of investigation tell the tale, and their number is constantly increasing. I am glad to say, too, that the makers of scientific instruments have given attention to the subject, and have produced suitable apparatus. I cannot say that this apparatus as produced by different makers is of equal efficiency, but it is a fact that there are few, if any, who do not keep such apparatus in stock, and it can be obtained at moderate cost. I am also glad to say that these opticians have sufficiently studied the desiderata of the question, as to produce instruments which will yield satisfactory results.

Broadly speaking, and looking at photo-micrographic apparatus as a whole, it may be placed under two categories :—

I.—Arrangements when the microscope, &c., is on one base and the receiving surface on another. (The lecturer here showed a diagram exhibiting this arrangement, the camera being supported on a table, and the rest of the apparatus on another similar but separate support.) The original apparatus of Woodward, Maddox, and other early workers was of this type, and certainly very good work was done with it. For various reasons any system arranged on such lines was, in his opinion, a retrograde step. Mr. Charters White is another worker who has produced good results with apparatus on the same system.

II.—A rigid position of all the component parts of the apparatus, brought about by screwing them to one continuous base. Perhaps the most elaborate apparatus ever applied to the purpose was that constructed by Messrs. Swift (partly from suggestions by the lecturer) for the Veterinary College, an apparatus which was found to answer extremely well. Mr. Swift had lately produced a new design of microscope, fitted for photographic manipulations, which seemed to answer every purpose of the kind. The lecturer had also had made for him an apparatus with somewhat the same characteristics as that already mentioned as having been adopted by the Veterinary College, but this was a far cheaper instrument made by Messrs. Baker. (A picture of the apparatus was shown, and by its side a vertical apparatus by the same makers.)

If a microscope is fixed upon a solid base for photographic purposes, it is sometimes very inconvenient to find room for the head when it is required to examine a preparation with the eye; for this reason it is best to have the apparatus so arranged that microscope and its illuminant stand on a kind of turntable which can be switched round when necessary, replaced and fixed in the original position by a screw. Some workers, notably Mr. Nelson, do not employ a turntable, but the lecturer prefers it. After all, the principal point in all apparatus of this kind, and especially when high powers are being used, is that they shall be so constructed as to be free from tremor.

Another way in which photo-micrographic apparatus may be considered is in placing it under the two following heads :—(1) Apparatus entirely on the horizontal; (2) apparatus entirely on the vertical. In photographing liquid objects, it need hardly be pointed out that a horizontal apparatus is impracticable, and that, therefore, a vertical one becomes necessary. Dr. Van Heurck, of Antwerp, has done very good and important work with an apparatus consisting of a closed box, on four legs, standing above the camera (this is figured in Messrs. Watson's catalogue). It is a very simple form of instrument, and, judging by the results obtained, very efficient.

For certain reasons the lecturer was induced to design something for vertical work which differed in many essential details from the apparatus last described. There are many objects which it is desirable to photograph in the *living* state, many of which require something approaching to an instantaneous exposure. It is also desirable in such cases to watch the object up to the moment of exposure, so that its most favourable aspect may be secured. In an instrument designed by Natchet this desideratum is secured by the use of a reflecting prism, which itself serves as a shutter to the objective. This prism reflects the image into a tube at the side of the instrument which contains the ocular. When the observer is satisfied with its appearance, he touches a catch, which withdraws the prism for a moment, and allows the image to pass into an attached camera.

The lecturer made some experiments in order to see whether the prism could not be replaced by a speculum; but the results were not satisfactory. Making use of certain experiences gained in ordinary photographic practice, he was subsequently able to design an instrument which was placed on a strong and heavy base, and by its means quick exposures were secured without jar or tremor.

Although he had pointed out in the opening of his lecture that he could not claim for photo-micrography any notable advances within recent months, there were certain forward steps made not long ago to which he might briefly refer:

1. The introduction of colour sensitive plates; and
2. Improvements in objectives, chiefly due to the researches of Dr. Abbé.

All authorities agree that a great advance is represented by the introduction of the Zeiss apochromatic objectives, and they are, probably, the best yet made. But they are certainly expensive, and German makers are producing good glasses at a more moderate price. As an example of the results due to the use of high numerical apertures he might mention that Mr. J. F. Smith had ascertained that the siliceous coverings of certain diatoms were in distinct layers. (Examples shown on screen.)

Mr. Pringle then exhibited on the screen a number of very fine examples of photo-micrographic work, such as the flagella of different kinds of bacteria, including that of Asiatic cholera, the bacillus of typhoid—each one provided with an enormous number of flagella.

Alluding to the advantages gained by the use of colour-sensitive plates, Mr. Pringle compared the photograph of an object, the negative of which had been taken on an ordinary plate, with one taken under the improved conditions, the difference being remarkable. Some objects, he said, with ordinary plates, were next to impossible. His own researches were chiefly in the medical line, and his audience must forgive him for giving a natural prominence to that phase of photo-micrography. The first essential to secure good work is a first-class preparation, and the next a good negative from that preparation. A great many doctors were now turning attention in this direction, and he could name a number both British and foreign.

In conclusion, he would advise the medical profession to make use of this comparatively new aid more than they do. He would give one more example of its importance. Some time ago a discussion arose with regard to certain protozoa associated with cancer. Exquisite drawings were made of the appearance, but it soon became evident that the whole thing was misunderstood. The artists did not understand the particular points which they ought to emphasise, and certainly others could not be expected to benefit by their drawings. When the objects came to be photographed (examples shown) there could be no mistake about them at all. There they were, and no one could possibly overlook them. The capacities of photo-micrography are unlimited, and its most successful adherents cannot say what expansions it may have in the future. As to the medical profession it will be obliged to take it up, and anyone doing so will not waste his time particularly if he gives attention to the work in its higher aspects. He would advise anyone who has the opportunity to take it up as a hobby, or even as a constant pursuit.

In the discussion which followed the reading of this interesting paper the opinion was expressed that the apochromatic lenses, recently introduced by Powell and Lealand, were superior to the German ones. Capt. Abney, in closing the discussion, remarked upon the constant tremor due to earth movements, and referred to his own practice of using monochromatic light, utilising part of the spectrum for photo-micrographic work.

The next paper was

"On a Process of Photo-mechanical Printing in Natural Colours,"

by W. Weissenberger (of St. Petersburg). This proved to be an interesting paper, and in the absence of the author it was read by Mr. Warnerke, who illustrated it with a number of examples of photo colour-printing in its finished and unfinished stages. After reading a translation of a paper which appeared some time ago in the *Photo Correspondenz*, Mr. Warnerke supplemented it with additional notes, which had been specially written for the Congress, containing an account of certain improvements which had since been introduced into the process.

In the discussion which followed it seemed to be generally agreed that the process was not practicable from a commercial point of view, the chief difficulty being the regulation of the exact amount of each colour necessary to give the combined effect. It was stated by one speaker that twenty-nine proofs out of thirty would be so faulty that they must be thrown out. Mr. Warnerke, in reply to these criticisms, pointed out that the author of the process worked from higher motives than those of a mere commercial adventurer.

The President remarked that it was most difficult to close a discussion of this kind. For his own part he objected to red, yellow, and blue being called primary colours, and he also thought that the super-position of colours was a point open to question. It by no means followed that because the Russian State Paper Office can turn out such work, it should answer commercially.

It fell to the lot of the Hon. Secretary of the Society, Mr. Chapman Jones, to read the paper contributed by E. Von Hoëgh, on

"The Astigmatism remaining in Some Anastigmats."

This paper was of a technical nature, and dealt with a confirmation by the author of the comparison lately made, the results of which were published in many journals, between the Zeiss anastigmat *f*/6·3, and the Goerz double anastigmat *f*/8·7, by Dr. Miethe, Dr. Stolze, and Dr Neuhaus.

The afternoon meeting closed with a paper by Mr. Hector Maclean, entitled

"PHOTOGRAPHY IN COMPARTMENTS."

In this paper—the title of which is somewhat vague in character, the author recommended that the system of having separate classes should be adopted at their exhibitions by the Photographic Society of Great Britain. The paper had many good suggestions in it which, unfortunately, were hidden in a mass of verbiage which frightened away the hearers one by one, until but a dozen listeners remained. As a specimen of extraneous matter with which it abounded it will be sufficient to quote the following :—

"In support of the above thesis it is surely not requisite to dwell upon the universal tendency which is growing at a rate of almost geometrical progression towards specialisation. What is photography itself but specialised physics? And are not camerists merely specialised anthropomorphous simians, who, according to Kipling, have 'cut off their beautiful tails'? May be we may for the present allow ourselves to question the conclusions arrived at on this point by biological experts, even if we are obliged to believe with that very colonial bishop who only the other day declared that Adam was a nigger.

"Just, then, as all things mundane have been hurrying 'down the ringing grooves of change,' and week in week out becoming more complex, so have the evolutionary impulses acting day by day upon photography caused its applications and manifestations to grow and ramify with such exuberance that the larger branches are not merely out of touch, but seem quite unrelated, and while one towering limb bears aloft the astronomer, who like an eagle perched on high surveys the universe, cowering and moiling amongst its roots is the tin-type."

After considering the *pros* and *cons* of the class system at exhibitions, Mr. Maclean alluded to the Salon Exhibition as follows :—

"Of this crying need for more compartments—that is, more specialisation—you have a living demonstration in the exhibition at the Dudley Gallery, an exhibition which I would fain hope and think may eventually be the means of greatly bracing up our own. But, gentlemen, it may happen that this 'Salon,' despite its foreign name, will take root amongst us, and succeed in permanently attracting unto itself a number of those who, possessing much art capacity, will to some extent refrain from contributing to our own exhibition, and in that measure deprive our time-honoured walls of many notable examples of the most glorious among the many different emanations of the camera.

"Nor can we of a surety predict that the defection will stop at pictorial photography. Another limb may drop off, which particular one who shall say?—stereoscopic photography, or hand-camera work, or lantern work, or that flourishing branch known as process work? Or perhaps it will be the portrait photographers who will clamour for a show of their own. Anyhow, it is no part of my case to forecast in what quarter a demand for sectional Home Rule is likely to arise ; enough if I can impress upon you that unless the compartment system be adopted the separatist movement is not unlikely to continue growing."

Summing up the matter, Mr. Maclean held that the classification he advocated was :—

"(1) Better than confusion.

"(2) More stimulating.

"(3) Most necessary.

"By classification I mean :—

"(1) The drafting of a schedule defining the various 'compartments.'

"(2) The exhibition of the various categories each in its own well-defined space ; each under specially suitable conditions, and each as far as possible enjoying the same measure of publicity.

"(3) The delegation of the hanging, judging, and general arrangements pertaining to each 'compartment' to one or more distinguished specialists."

A brief discussion followed the reading of the paper. Mr. Warnerke and Mr. Chapman Jones both agreed that there was much in it that required digesting. Captain Abney, in closing the discussion, said that if the proposed compartment system ever came to be adopted, he sincerely trusted that he should not be asked to be a judge. He pointed out that at the Royal Academy the pictures were hung indiscriminately. Nude studies were placed next to landscape, and so on, and that the exhibition would not be rendered any more attractive if all the portraits were put together, and the other pictures classified in the same manner.

The usual vote of thanks followed, and the meeting dispersed.

The evening meeting opened with the eagerly expected demonstration of the Lippmann colour method as modified by Lumière, and, although the rain came down in torrents, a large audience assembled to hear Mr. Warnerke's description of the process. He pointed out that about two years ago, M. Lippmann succeeded in producing an image of the solar spectrum in its true colours. This was done by preparing a special gelatino-bromide plate, so weak in its composition that it was almost transparent. This plate before use had its sensitiveness increased by immersion in a silver nitrate bath, after which it was dried. A plate so prepared was placed in contact with mercury, and the camera exposure was then made, the rays from the lens being transmitted through the glass, and thus reaching the sensitive film in contact with the mercury. The projected rays of light were thus met by the rays reflected from the mercury, and the phenomena of interference was produced in the film. Mr. Warnerke finished his remarks by stating that they had before them one of the greatest inventions of the nineteenth century, and that they must congratulate their friends on the other side of the Channel on having achieved this triumph of photography.

The demonstration followed. There were seven examples in all—six from nature, and one from a chromolithograph.

Mr. Spiller thought that the demonstration was most interesting, and that the thanks of the Society were due to MM. Lippmann and Lumière for giving them this opportunity of seeing the results of such an important discovery, also to Mr. Warnerke for his kind offices in the matter. He had lately looked up what had been done in past times towards the solution of the colour problem, but could find nothing to approach this.

Captain Abney said that these pictures did not demonstrate that we had solved the problem of photography in colours. That problem was as far from solution as ever. But they exhibit an approximate approach to natural colours. The reds are not so good as they ought to be, but this was of course readily accounted for. If we had such pictures in our rooms we should require a light to see them by, which should be from one particular direction. He suggested that MM. Lippmann and Lumière should receive a letter of thanks from the Society.

(*To be continued.*)

RECENT IMPROVEMENTS IN PHOTOGRAPHIC LENSES.

BY W. K. BURTON, TOKIO, JAPAN.

I IMAGINE that the greater number of any who care to listen to this paper will be practical photographers, either amateur or professional, practical users of lenses, and that they will prefer a short account of the actual advantages *in use* that are offered by recent improvements in lenses, to any theoretical discussion about their forms or properties. For that reason I propose to avoid theory altogether, and to tell you in the plainest language possible what I consider we have really gained in photographic optics of recent years.

When the wonderful properties of the Abbe Schott glass of Jena were described some years ago—properties so remarkable that it seemed as if mathematicians might play with the designing of lenses—it was evident at once that the photographic lens was one among others that ought to gain by the new inventions. Great were the expectations, but for some time the new glass seemed to lead to nothing of a practical nature that was remarkable. Rumours were heard of the remarkable results that had been got with experimental lenses in which the new glass was employed, but there was little more, except further rumours to the effect that there was difficulty in getting the glass needed in sufficient quantities or of sufficient uniformity; that there was doubt as to some kinds of the glass, whether they would not deteriorate, &c.—all or any of which may or may not have been true. This remains, however, that it appears to have been only three to four years since photographic lenses in which the new glass was used were advertised for sale.

I am not prepared to state what optician first made use of the Jena glass for photographic lenses. I have seen it claimed by (or for) Suter, of Basle, that his firm was the first to use it, and I know that it was from the English agent of his firm that I first heard directly of the use of the new glass in photographic objectives. Suter used the new glass to improve his already excellent "Extra Rapid Rectilinear" or "Universal Rapid Rectilinear" as lenses of rectilinear type working at *f*/5·66, and, therefore, of double the rapidity of the common form of rapid rectilinear, are commonly called.

The ultimate angle of view with a small stop was somewhat contracted, but a better compromise between roundness of field and astigmatism resulted, so that the field with the larger apertures was practically extended.

Talking of roundness of field and of astigmatism, it is right to state that roundness of field is that defect in a lens whereby the definition at the margin of the plate is defective, while that at the centre of the field is good, but with which it is possible, in focussing, to at least vastly improve the definition at the margin by sacrificing that at the centre.

Astigmatism is a defect also giving want of marginal definition, but this of a kind only slightly, if at all, improvable by sacrificing the central definition. If, for example, the face of a clock or a watch be focussed at the side, top, or bottom of the ground glass, a lens that is astigmatic being used, it will be found possible to focus the vertical figures fairly sharp, when the horizontal figures will become wofully out of focus, while the converse will result if the horizontal figures are focussed. On the attempt to focus a point near the margin of the plate it will assume the form of a radial line in focussing in one direction—a tangential line in the other.

In practice, the evil effects of roundness of field can be counteracted by the use of a small stop. Those of astigmatism can be counteracted to only a small extent by this means.

In nearly all rapid rectilinear lenses the roundness of field may be improved at the cost of astigmatism, and *vice versa*, merely by altering the distance between the combinations; and the actual distance that the optician adopts is that which he considers gives the best compromise between the two different defects.

It may be worth mentioning here that an improvement generally, in the matter of rapid rectilinear lenses, has taken place in the last few years. Ever since photographers began to talk about "*f*" upon so-and-so, it has been a popular superstition that rapid rectilinear, or rapid symmetrical lenses, or lenses of these types called by whatsoever names they might be, "worked at *f*/8." As a matter of fact, the diameters of the glasses generally corresponded to *f*/8, but the actual aperture was more commonly than not contracted to considerably less than *f*/8 by a fixed stop. During the last four or five years this has been altered, and nearly every—indeed, I think I might say every—optician of high reputation sends out all lenses of the rapid rectilinear class with apertures that are actually *f*/8, if not more. I do not know to what extent, if any, this practical increase in this working aperture of rapid rectilinear lenses is due to the adoption of the Jena glass. In any case, those buying second-hand lenses should bear in mind that while those made eight or ten or more years ago may be excellent in every other respect, they are liable to be slower than lenses of the same name sold at the present day.

I believe the first lens of entirely new form that resulted from capacities of the new glass was one of the various new forms of photographic objective invented by

Carl Zeiss, but, for reasons I shall mention hereafter, I describe first of all a lens by another maker—to wit, the Concentric Lens of Dr. Schroeder. This lens, the invention of Dr. Schroeder, and manufactured by Messrs. Ross & Co., of London, is certainly a remarkable instrument. In appearance it is much like most lenses that go by the name of "Wide-Angle Rectilinears," "Wide-Angle Symmetricals," "Portable Symmetricals," &c., but that for a given focal length it is somewhat more bulky than some of these lenses. Another thing that is likely to strike one on first seeing the lense is that the curves of the external surfaces appear somewhat more pronounced than is usual—that is to say, they are of shorter radius. A further examination would show that the two surfaces of each combination are parallel—that is to say, are struck from the same centre. Hence the name, concentric. I started, however, to write only of lenses in use, so shall say no more of the construction of this lens.

The concentric lens that I have used has a focal length of twelve inches, and a maximum aperture of *f*/16. At this aperture it is not, however, pretended that the lens gives absolutely sharp definition; and, in the case of the lens I refer to, the definition is certainly not absolutely sharp with *f*/16, a thing that many will consider an advantage for some purposes, inasmuch as it gives that softness admired by many—admired by myself in the case of many subjects. I see Dr. Stillman has recently stated that he finds the definition with the concentric as good at *f*/16 as with a smaller aperture. As I have said, such is not my experience; and I have the authority of the head of the firm of Ross & Co. that the definition is not expected to be sharp with this large aperture, and that lenses are no longer to be issued with such apertures, because, despite the advantage that this aperture has with the accompanying "diffusion of focus," the majority of photographers do not seem to understand the precautions necessary in focussing with such a lens. They focus with the largest aperture, then insert a smaller stop, when the focal length of the lens is changed, and the definition is not what it should be, considering the diameter of the stop. It is very likely that, with the smaller sizes of the concentric lens, there is not a perceptible difference between the definition given by *f*/16 and by a smaller stop without special means of testing, and that it is thus Mr. Stillman has been led to make a statement which, if it apply in the case of certain concentric lenses, cannot be taken as applying to these lenses as a class.

Now, as to the properties of the concentric lens that are entirely new, they may be summed up in a very few words. The lens has an absolutely flat field, without either astigmatism or any other countervailing defect whatever; unless, indeed, it be considered a defect, as, perhaps, it justly may be, that the lens is less rapid than many that include the same angle with a round field.

How remarkable this quality of flatness of field is will only be appreciated if a comparative trial be made. I am certain, however, that if the photographer make such a trial as I now suggest he will be astonished at the increased power, in one certain direction, that the new lens affords.

The concentic lens is taken and also a "wide-angle rectilinear lens" of any make whatever, not using the new Jena glass. The lenses are to be of the same focal length, and of a focal length somewhat less than the greater dimension of the plate. For example, lenses of ten inches focal length may be used for plates 12 by 10. A good subject to select is the façade of a large building. The camera is planted fairly and squarely opposite the façade, and exposures are made with the two lenses, each stopped down to *f*/20 or *f*/22, at either of which apertures the concentric lens will give definition perfect under a good "focussing magnifier." Exposures are made, and the developed negatives are compared. The contrast is astonishing. We now, for the first time, realise how very narrow an angle the so-called wide-angle lenses that we have been using really include, quite sharply. We will find no difference whatever between the definition at the centre and the corners of the plate exposed by the concentric lens, except under a severe examination by the aid of a powerful eye-piece, and then the difference will be slight. Looking at the negative by the other lens, it will appear, by contrast, that there is a mere patch of central sharpness surrounded by palpably imperfect definition. To put it briefly, we have a lens of moderate rapidity with a perfectly flat field, the first lens with a really flat field that it has been my privilege to use. Still, it must not be forgotten that, however great the advantages of a flat field for some kinds of work, there are cases in which a round field is an absolute advantage, as, for example, when the objects that fall on the margin of the plate are much nearer than those that fall on the centre. On the other hand, there are cases, the converse of those where a lens with a field convex from the front would be an advantage, so that after all the flat field appears to be a happy mean.

(*To be continued.*)

CORRESPONDENCE.

DEVELOPMENT OF GELATINO-BROMIDE PAPER.

Sir,—My attention has just been called to an article in the *Photographic Times* of New York (September 29th, 1893, p. 544), by Mr. Walter E. Woodbury, in which the writer describes the method of developing gelatino-chloride paper recently shown and published by us, giving exactly the same formula for development.

As this article is unfortunately, although no doubt unintentionally, worded in such a way that the reader may suppose that Mr. Woodbury claims the method as his own discovery, and as such supposition places us in a position requiring explanation, I will ask you to kindly allow me to state the following facts:—

The process was discovered by us more than a year ago, and Mr. Woodbury being in our employment it was shown to him, under promise of secrecy, some time last winter. I do not know the exact date, but certainly before he left our service in February.

On February 21st we deposited a sealed paper, containing a description of the method, with Mr. H. Sturmey, editor of *Photography*, who, at our request, recently opened and published it in *Photography*, October 5th and 12th, together with a statement of how and when it came into his possession.

Why Mr. Woodbury has now published the process without our knowledge or permission I do not know, and can only suppose that, in the change and excitement of his new position, and after the lapse of so many months, he had forgotten the circumstances under which he became possessed of the information. This seems the more likely, as he appears to have also forgotten an important detail, giving, as he does, *iodide* of potassium instead of *bromide* for the preliminary bath. Iodide is practically useless for the purpose.

For Paget Prize Plate Company,

Wm. J. Wilson.

AMATEUR PHOTOGRAPHIC SOCIETY OF MADRAS.

Sir,—Will you kindly allow me to state, for the information of intending exhibitors at our coming show :—

1st. That all pictures should be addressed to the care of the Hon. Secretary, Amateur Photographic Society of Madras, Royapuram, Madras.

2nd. That no forms of entry are required, but a list of titles for catalogue should reach me by the 20th November, 1893. The list should also state the particular prizes for which the pictures are competing.

Thanking you in anticipation for your courtesy.

Fred. Dunsterville, Hon. Sec.

Royapuram, Madras, September 27th, 1893.

THE PHOTOGRAPHIC SALON.

Sir,—Your correspondent "M. or N.," in last week's number, seems considerably distressed in his mind over very simple matters, some of which, perhaps, exist in fact and others only in his fancy. That certain people hitherto going upon independent lines, but now, as "M. or N." says, rowing in the same boat, should certainly be a matter for congratulation and not animadversion, not only on merely personal grounds, but from the fact that the combined operation of various slightly divergent tastes with one common purpose—viz., the higher appreciation of art in connection with photography—must lead, as the present exhibition clearly shows, to a great and decided improvement in the character and art qualities of the work displayed. The list of grievances in your correspondent's letter is a long one and somewhat amusing. I have alluded to one complaint that he makes, the "kiss and be friends" one. He also objects to the Society entirely, stock, lock, and barrel ; he won't have their language nor their descriptions. The word "thing" dreadfully upsets him ; as also the musical expressions which he quotes, but which, contrary to the usual run of quotations, are some of them original in appearance, others in orthography. Then the works themselves get their share of abuse, and last, but by no means least, the poor committee get it very hot indeed. Sir, when I observe the sins of this thrice corrupt gang of back-scratchers, as "M. or N." implies they are, I am, naturally, petrified with horror. That thirty-three gentlemen, starting an exhibition, and agreeing to mutually support each other for the success of that exhibition by guaranteeing a certain number of exhibits—that is, each of them volunteering to do his best both in the number and quality of his "things," and leaving a margin for outsiders, should they send, and yet taking care that, should no outside assistance come, they would still be able to hold the exhibition—well, what can be said of such men ? And yet the outsiders, who had none of the trouble or risk, or responsibility of getting up the show, to the number of seventy-seven souls, have 138 works credited to them, the average being that, putting it roughly, the man who originated the idea, and stood the racket of the whole business, hangs two pictures (I mean things), while the man who had nothing whatever to do but to send in for exhibition *and sale* two things (I mean pictures) gets one of them hung—that is, accepting "M. or N.'s" figures as correct with reference to the rejected works. The pessimistic view of the future of the Salon expressed by the writer will hardly be shared, I think, by such people as have been working so long for the improvement in art photography, an improvement making itself more and more noticeable every day while the President of the Photographic Society, a photographer of the old school (I once heard him say of himself that he was "only a map maker") the other evening, at a meeting of the Society, hailed with pleasure the advent of this new venture. There appears a curious, unfortunate tone in your correspondent's letter, as though he had gone to the Dudley Gallery with the determination to be disappointed and see nothing to please him. Criticism is criticism, and taste is individual ; but blind obstinacy is a woman's argument. Mr. "M. or N." concludes his letter with the remark that, "Verily all things—including impressionism in photography—are vanity." My dear Mr. "M. or N.," may I remind you of the American's recipe for prophesying—namely, that it is unwise to prophesy until you know ?

Forward.

A SECOND IMPRESSION FROM THE SALON.

Sir,—Current rumour says a great many things that may be or might have been true. One of these floating reports is that a great many pictures (these were not "things") were sent to the Dudley illustrating one and the same genre subject, which seems to have been a great favourite ; but, adds the report, they were all most cruelly "chucked." Rumour also has it that one of these bore the initial "M. or N.," but this awaits *confirmation ;* it might as easily have been F. C. or L.

Rumour is safest when it puts facts out of focus ; it is more pictorial. A photographer once described fiction as fuzzigraphed fact. But, in this case, the description of the picture that failed to become a "thing" is most defined.

The background is a wall with all the joists showing ; over it trails a strong young grape vine bearing a few clusters of rich fruit ; in the foreground (the picture is red in tone, for the expression of a suitable sentiment) is a well-conditioned fox. The whole being too sharply defined for a fact, must evidently be the other thing—a fable.

Z.

PROCEEDINGS OF SOCIETIES.

Photographic Society of Great Britain.

Technical Meeting, Tuesday, October 24th, at the Gallery, 5A, Pall Mall East.

"Balloon Photography," by Capt. Mantell, R.E. Lumière's "Experiments in Printing with Manganese Salts." Mr. R. Child Bayley will introduce the subject and show specimens.

The meeting will *not* be held at 50, Great Russell Street, as previously announced, but at the Exhibition Gallery.

Hackney Photographic Society.

October 11th, 1893.

An entertainment was given by the Hon. Sec., Mr. W. Fenton-Jones, entitled "My Italian Campaign," or a trip from England to Italy by way of Paris, Marseilles, Rome, Nice, Geneva, Pisa, Florence, Venice, Naples, &c., which was illustrated by about 150 slides, put through the optical lantern under the management of the Society's lanternist, Mr. Albert Rose.

Notwithstanding the inclement weather there was a numerous gathering of members and friends. The lecture was very instructive and interesting, and the slides—which were of excellent quality—were nearly all taken in a hand camera, those of Venice, Rome, and Mount Vesuvius calling for special comment, these being excellent both as regards composition and finish. The variety of subjects which were shown proves what a decided advantage, and great range of subjects, a hand camera can produce; for many pictures—such as those taken from the train along the route—would have been impossible to obtain with other than a hand camera.

A voluntary collection was taken up on behalf of the Photographers' Benevolent Institution, which realised £1 13s. 9d.

A vote of thanks to the lecturer, which was proposed by Mr. C. Kemp and seconded by Mr. Puttock, brought a very enjoyable evening to a close.

Arrangements for November and December, 1893.

Special Meeting.—October 24th.—Notice of resolution given by Dr. Roland Smith:—"That Rule 1 now read: 'That the title of this Society be changed to Hackney and Clapton Photographic Society.'"

November 7th.—Open night.

November 14th.—"Clouds in Lantern Slides." Spencer H. Barton.

November 21st.—Lantern night: "The Forth Bridge." J. Rennie.

November 28th.—Smoking concert in Club-room. Each member is requested to bring up a song or two. Piano kindly lent by Mr. Penny.

December 5th.—Open night.

December 12th.—Demonstration of Dr. Andresen's Compressed Amidol, Metol, and Toning Cartridges.

December 19th.—Lantern night: "Photographs of Chicago Exhibition," by Official Photographer. Albert Rose.

West London Photographic Society.

Annual General Meeting, October 10th, 1893.

The annual report was presented, discussed, and adopted, and the meeting proceeded to appoint officers for the coming year. Mr. J. A. Hodges was re-elected president.

Richmond Camera Club.

At the weekly meeting held at the Greyhound Hotel, Mr. Zachariasen showed a hand-camera designed by him, which, besides being light and compact, had some novel points. The plates are exposed in double dark slides of a new form, which are about half the thickness of the usual kind and one-third the weight. The slide is enclosed within a light-tight chamber in the camera, and the shutter of same opened from outside by means of a lever.

Mr. S. H. Fry gave his lecture on "Lantern Slides with Gelatine Plates"; his remarks being chiefly concerning the Paget printing-out plates. He considered that the essential characteristics of a good slide were great brilliancy combined with great purity of tone. The shadows should be quite transparent, and there should be some clear glass in the picture. The question of colour was a most vexed one. At first, slides made on gelatine were cold in tone, but the result of several years' experience with them had made it possible to obtain almost any colour. For reduction purposes a fairly rapid plate was desirable; but to obtain the finest deposit the printing-out plates were the best. True, they were slow, but not as much as some believed, while a good method of development greatly overcame that objection. They could be slightly printed out and then developed, which he thought was the method giving the best results. He preferred a combined toning and fixing bath. It was essential to keep the bath either neutral or alkaline, hence he recommended the addition of a lump of chalk to it. To obtain warm tones on the ordinary lantern plates, the exposure should be increased considerably and carbonate of ammonia added to the developer, as it acts as a restrainer and colour-giver.

Newcastle-on-Tyne and Northern Counties' Photographic Association.

October 24th, 1893.—Annual meeting and exhibition of slides, at 7.30 p.m., at the Association Meeting Room, Art Gallery, Newcastle-on-Tyne.

Ashton-under-Lyne Photographic Society.

On Wednesday evening, October 11th, Mr. J. T. Lees gave a demonstration on lantern-slide-making. There was a fair number of members present, and Dr. Hamilton, the president, in introducing Mr. Lees, said it had often been a matter of much curiosity and surprise to him to know what became of all the negatives of photographs, when so many members of the different photographic societies were having rambles weekly all through the summer. He could not think that the whole of them were failures. One way of using those results would be shown by Mr. Lees.

Mr. Lees, before giving his demonstration, had thrown on the screen a number of slides, showing different faults in them, and pointing out where they could be improved. He also showed slides with clouds put on the cover glass, and then had the slide separated and showed the slide without cloud, thus showing the improvement by having a suitable cloud added to the slide. He then proceeded to expose and develop a number of plates on negatives provided by different members. He exposed six at once at different distances from the light, and after they were developed and fixed, they were put into the lantern and thrown on the screen. He advised all new beginners to keep to one good brand of plates and one developer, and if they persevered they would (in time) become successful.

A hearty vote of thanks was passed on the motion of Mr. Wm. Moss, seconded by Mr. Thos. Glazebrook.

Leicester and Leicestershire Photographic Society.

The winter session of this Society was very successfully opened on Thursday evening, the 12th inst., when a highly instructive lecture was delivered by Mr. H. Cowdell, one of the members of the Society, entitled "Snap-shots in the East," illustrated with seventy lantern slides depicting scenes, manners, and customs of the Eastern people, all taken from negatives obtained by Mr. Cowdell with a snap-shot camera on his journey to Constantinople, Athens, Smyrna, and the Levant. The slides, as they appeared on the screen, were described with that piquancy and detail which can only be attained by personal acquaintance with the various subjects. The slides were mostly of a high-class character, as might be expected from an operator who has made this branch of the art his study, and altogether the lecture was highly successful, and may be taken as a happy augury for the progress of the Society during the ensuing season.

The Mayor's Parlour, Old Town Hall, was quite filled with an interested audience, and at the close of the lecture a hearty vote of thanks was proposed by Mr. Matthews (Wigston), seconded, and carried with acclamation.

Before the lecture the usual formal business was transacted. Nine members were proposed for ballot at the next meeting and one elected, and the members may be congratulated on the prosperity which is attending the efforts of the officers of the Society.

The Photographers' Benevolent Association.

October 17*th*, 1893.—*Meeting at the Rooms of the Photographic Society of Great Britain*, 5a, *Pall Mall East*, *S.W.*—Mr. A. Mackie in the Chair.

The Committee confirmed a loan of £15, granted on September 28th by a sub-committee, in a case that was partially considered by a full committee on September 15th. The following other cases were considered :—

1. A discharged soldier, who had been a military photographer, and who, since his discharge from the army owing to broken health, had been working as a carbon and process photographer until disabled by bichromate disease, applied for immediate assistance and a loan of sufficient money to purchase camera and lens. Owing to illness and time spent in hospital he was penniless. The Committee granted a small sum in instalments for immediate subsistence, and instructed the Secretary to purchase a second-hand whole-plate camera and lens. Applicant had secured permits to photograph in several police-barracks and workhouses.

2. Applicant, who was assisted four years ago with a grant of £5, applied for further small assistance until he should obtain situation. A grant of £2 was made.

3. An operator, to whom grant of £5 was made on September 15th to enable him to reach a situation, applied for further £5 in order that his wife and family might reach him, and so reduce living expenses and enable him to repay the whole loan. Amount was granted.

4. An operator who was assisted last year, and who during the spring and summer has been in several temporary situations, some of which were found by the benevolent, made application for further assistance. Secretary reported that he had granted immediate relief to the extent of £1 in instalments, and that as the applicant had obtained a month's engagement the application was withdrawn. Committee confirmed Secretary's advances.

Donations were acknowledged from the following :—London and Provincial and Photographic Club outing, 9s. 1d.; Messrs. Henry Dixon & Son, £2 2s.; Brighton Photographic Company, per Mr. Wicks, £1 16s. 6d.; a Friend of the Benevolent, £1.

Mr. Leon Warnerke was accepted as a subscriber.

Messrs. Newman & Guardia inform us that they have removed to new premises, comprising offices, showrooms, stores, dark room, &c., at 92, Shaftesbury Avenue, London, W., where the "N. & G." hand cameras and their other specialities may now be seen, and where all communications should be addressed in future.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

J. M. G.—For trial prints, merely to ascertain quality of negatives, we should advise you to use ordinary albumen, or gelatino-chloride paper, and neither tone nor fix. You cannot have anything cheaper, and the price of either paper used in this way will come to about the same. If you want a permanent record, there is the blue (cyanotype) process open to you, which merely requires development in plain water.

H. L. L.—There is nothing better than the wet process for such large negatives as you are contemplating, but take care that the small positives from which you copy are far denser than ordinary lantern slides, or you are likely to fail in the work. Your enlarging lantern should have a condenser of not less than six inches; but, if you enlarge by daylight, no condenser will be necessary.

J. V. D.—A history of photography has been written by Jerome Harrison, but you will get a short and concise summary in the article, "Photography," in Chambers's Encyclopædia. This is from the pen of the Editor of the Photographic News. Glad that you have found the book to which you refer of so much service to you.

Mocha.—If your finger tips are not sensitive enough to enable you to tell the sensitive side of paper and plates in the dark room, it is clear that you must rely upon some other aid. All sensitive papers curl with the warmth of the hand, with the prepared surface inwards. There should be no difficulty in distinguishing the right side of a plate, unless it be a chloride transparency plate, which has a very thin opalescent coating. By slightly breathing on it, however, the glass side will be seen to retain the moisture, while the other side will not show it at all.

LL.D.—The addition of a little glycerine to the solution will, you will find, make the operation more regular and easier to perform in every way.

O. C.—The aluminium toning bath was suggested some time ago in one of the American journals, and is said to afford very fine warm brown tones. The formula is as follows :—

Aluminium chloride	20 grains.
Soda bicarb.	85 ,,
Water	12 ounces.

Add gold solution as required.

D. Carroll.—The new methylated spirit has certain disadvantages, one of which you have discovered for yourself when using it for wet plate developing. It is also agreed by most workers that it is unfit for use in collodio-bromide emulsion, although some have regarded it as a useful accelerator of that process. You can still obtain the old kind of methylated spirit under license from the Excise authorities—five gallons, we fancy, being the minimum quantity. This permit is some little trouble to get, but need not be grudged by the experimental worker.

J. (Middlesbro').—The printing paper is not at fault. Your negative is evidently a very thin one, and will never give a really good result unless all sorts of precautions are taken in the printing. Your best course will be to make a denser negative from it, when you will have no further trouble.

Aladdin.—We go to press on Wednesday night, and your communication did not reach our office until Thursday morning. We return it to you according to your request, and are sorry that it was too late for publication.

PATENT OFFICE

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1834. OCTOBER 27, 1893.

NOTES.

At this time of the year the photographic societies are recommencing their meetings, and there are now so many of them that anything like a detailed report of their proceedings in our columns becomes impossible. We shall, however, always endeavour to deal as fully as possible with anything new which may be brought forward. The stumbling-block of the minor societies is the temptation to ask incompetent beginners to read papers upon hackneyed topics, and, as a rule, modesty does not hold the gentlemen back.

We are requested to remind our readers that the second annual exhibition of the Leytonstone Camera Club will be opened on the 20th prox., and will remain open for six days. In addition to the pictorial attractions, visitors will have an opportunity of hearing "The Veronese Band," and are also promised lectures, demonstrations, lantern displays, and other entertainments. The judges appointed are Messrs. Cembrano, Gale, and Pringle, who will have the disposal of twenty medals.

The Photographic Club which meets at Anderton's Hotel issues a very attractive programme of arrangements for the winter session, which dwellers in the Metropolis would do well to look through.

At an inquest held last week upon the body of an old soldier, it transpired that the deceased had taken cyanide of potassium as a "pick-me-up." The poor man had evidently intended to take bromide of potassium, which is an ingredient of many so-called pick-me-ups. It was stated that the death-dealing drug could be bought at any wholesale chemist's, or at any shop where they sell photographic appliances. This statement decided the coroner to lay the facts before the Pharmaceutical Society.

Those interested in carbon work should note that a demonstration of the process will be given at the Central Photographic Club, Coleman's Hotel, Henrietta Street, Covent Garden, this (Friday) evening, by Messrs. Elliott, of Barnet, when visitors will be welcome.

The London and Provincial Society are just now exercised in mind as to the advisability of admitting ladies to their meetings, and a lively debate upon the subject will come on next week.

We cut the following from our contemporary *The Morning*, of October 23rd. The subject has been taken up in our correspondence page; still the views or opinions of a non-scientific paper may be not without interest on this point :—"As a result of the criticisms bestowed upon the productions at the big shows in Pall Mall and Piccadilly respectively, it seems fairly safe to prophesy that among the accepted pictures at next year's exhibitions there will be a marked preponderance of what are termed 'artistic' photographs, over the scientific or technical works to which we have been so long accustomed."

The paper mentioned afterwards remarks "that it is all very well for judges to say that small prints receive as much attention at their hands as do the larger pictures, but the fact remains that, notwithstanding the undoubted technical excellence of many of the 'little 'uns,' it is only upon very rare occasions that a medal, or other award of merit, finds its way to the exhibitor of quarter-plate or smaller prints." This is hardly as it should be. In many of the suburban photographic society's shows small choice pictures constantly get commended, and in the Pall Mall Exhibition, out of the nine medals awarded, Mr. Burrow, with comparatively small pictures of mining scenes, takes one; Mr. Sinclair, with one enlarged quarter-plate and its original, with six other quarter-plates, takes another; and Mr. Charles Moss has a medal for four very little landscape pictures, while the very large works have been pretty generally passed by. In Mr. Sinclair's case the medal was no doubt given him not for the enlargement only; the judges evidently wished to mark their appreciation of the beauty, both technical and artistic, of his very charming hand-camera pictures.

The London County Council's decision to photograph the gates on the Bedford estate previous to their removal, so as to preserve a memento of the obstructions which have inconvenienced Londoners in this part of the Metropolis for so long, may lead in time to the appointment of an official photographer, for whom there would be no lack of work. In connection with this subject, we are tempted to again ask the question whether the Court of Common Council ever made the grant of £50 asked for some time ago by Dr. Sedgwick Saunders, the medical officer of health, for the purchase of photographic apparatus. Some members of the Court could not see what the medical officer wanted with a camera, and the matter was referred to a committee, with what result we have never heard.

Photographic reproductions in miniature of printed matter are no longer novel. They were never of the slightest use, as the type was made so small as to be utterly unreadable save with the assistance of a magnifying glass. A photographic reproduction of the reports and balance-sheets of the various insurance offices, which has just been published, is for this reason more curious than useful. Only persons with the very strongest eyesight could employ it as a work of reference, and even these could not do so with anything like comfort. We have, however, heard of an instance where photographically reduced copies have proved advantageous. A popular singer, who likes an extensive *répertoire*, and who does not care to trust too much to his memory, photographs his songs, and pastes the reduced copies on cards, using both sides of the latter. Thus he can take a whole portfolio in his coat pocket without difficulty; and though he may not look at the music in every case, he has the satisfaction of knowing he has his prompter in readiness. Besides, the wear and tear of the ordinary music is saved.

Stevens' auction rooms every Friday presents an instructive example of the vanity of human wishes. Apart from the out-of-date apparatus of every conceivable kind, we occasionally get isolated specimens of ingenious contrivances, over which the inventor must have spent infinite time, trouble, and money, with possibly very little result. Strolling through the rooms a short time ago, we came across a novelty in the shape of a camera obscura, the inventor of which was evidently a photographer. The apparatus was in shape an elongated, four-sided pyramid, the base being about a foot and a half square, and the height some four feet, with a lens and mirror at the apex. In one of the sides were two sleeves of black calico, with elastic, in the well-known dark-box style, while between was an oval opening, padded at the edges, for the face to rest against; the paper receiving the image thrown by the lens rested on the bottom of the box. The camera was beautifully made, and, by the look of the padding, had been very little used, as the necessity for ventilation had been forgotten. Probably the artist soon discovered that to work sufficiently long to enable him to draw and paint the desired landscape entailed a risk of asphyxiation.

A pictorial competition is going on just now in a weekly periodical. It consists of a number of incomplete portraits of celebrities being given; the competitors have from these scanty materials to make out the originals. The peculiarity which at once stands out is that all the genuine celebrities, those who have made for themselves a name in literature, the arts, or statesmanship, are easily recognisable by strong characteristics, one line in many cases being sufficient for identification. The lesser lights, and especially those who are youthful, are all so much alike as to fairly baffle the competitors. Fashion has reduced mankind and womankind to one monotonous level. The young men have moustaches of the same pattern; the young ladies all wear their hair built up in the fuzzy style in vogue some two or three years ago. It is curious that out of the 111 imperfect portraits given only eleven are those of the fair sex. We do not say this shows that women possess less individuality than men, but it would indicate that their individuality is not so apparent in their faces. But peculiarities of beards and moustaches count for much.

Those photographers who took up their position on a large steamer on the occasion of the recent Anglo-American yacht race were, it seems, doomed to disappointment, for the smaller craft were able to get much nearer to the competing vessels, and shut out the view of those on the larger boats, which, by reason of their size, were obliged to keep at such a distance that the yachts were practically out of range. Photographers are recommended to try one of the small tugs next time.

A fatal explosion occurred at Melbourne on Wednesday last. A chemist named Liardet was engaged in some experiments with a powerful explosive which he had just succeeded in inventing, after years of patient labour, when the substance exploded, and the unfortunate man was literally blown to pieces.

MR. BERGHEIM ON ART.

THURSDAY, the 12th inst., was quite a gala night at the Camera Club, for not only were the Lippmann colour photographs exhibited, under the auspices of Captain Abney and Mr. Warnerke, but the proceedings were further enlivened by the reading of a noteworthy paper, by Mr. Bergheim, upon Art in Photography. He was introduced to the meeting by the Chairman, Professor Armstrong, who pointed out that, while Captain Abney's demonstration was rendered possible by the use of sixty cells, Mr. Bergheim came before them with his name associated with only one sell—an allusion which had reference to one of Mr. Bergheim's Pall Mall pictures.

Mr. Bergheim commenced his remarks by expressing his regret that he had not present a lovely model, so that he might have draped her before the meeting, in illustration of what he was about to tell them; and he was so imbued with this idea that he actually engaged one for the purpose, but found, all too late, that ladies were not admitted to the Club, and that the Committee were afraid to alter the rule without calling a general meeting. He would begin by asking, "Is photography an art?" He would say no; it is a science and a craft, but nothing beyond. A man might be a good photographer without being an artist. The camera is as soulless as the hog's bristles in the painter's brush, and the hog's bristles paint the pictures. Attempts have been lately made to give the camera a soul, by furnishing it with a slit, a star, or a pinhole, in place of a lens, but these attempts have failed. Before the lecturer knew anything at all about photography he took a snap-shot camera with him abroad, and made several hundred exposures. There were many blanks; a great many were spoilt in development, but there were three gems worthy each of a silver medal. A pretty, clean-skinned girl, fully lighted, will make a pretty picture, or an octogenarian will, with his wrinkled features, make an artistic one; but this is no more to the credit of the man who makes the negative than the Falls of Niagara can be considered creditable to the Americans. There is, in reality, no art in recording anything of which one has had no previous conception. Within certain limits a faithful record can be made of what is sought, provided always that you know the technique; but how few out of the millions study the technique of photography, and how few ever set themselves to work upon a conception which they feel bound to carry out!

For the benefit of beginners only, he would like to show a few examples of portraiture which would prove that it was possible, to some extent, to get what one aimed for, and they might consider at the same time how far the model contributed to the success of a picture. Here were two pictures taken from the same model with an interval of thirty seconds between the exposures. Each showed a girl's face, one apparently in the depths of misery and the other laughing. The difference was chiefly due to the arrangement of the light and to focussing, the one portrait being lighted from above, and the other from below, the model in the last case, having had a sheet of cardboard placed in her lap to reflect the light up towards her features. This will show how a face may be manipulated with only little help from the model. Mr. Bergheim's next example was the female head and bust which has been so admired at the Salon Exhibition. The picture of this young lady, he said, had been admired for the beauty of the face, but in reality she was quite an ugly woman with high cheek bones, which he had succeeded in suppressing by inclining the face downwards, leaving it in shadow, and so preventing the cheek bones from appearing prominent. He never retouched his negatives, and he always used with such subjects a spectacle lens in preference to a photographic one. This simple lens might be compared to a painter's thick brush, with which he could obtain broad effects, or to the fingers and thumb which some artists called in to assist them in laying on their colour with the same object.

We must remember that the camera has only one fixed eye, which is very different to the human eye. When we look at an object the iris contracts or dilates with the amount of light available, so that we see almost as well in semi-darkness as in full light. The lens does not possess this power of adaptation. I now show a picture in which I have endeavoured to make up for this want of adaptation in the lens. It is a portrait, in which the light comes from an ordinary window. It had two exposures; first a long one with the light intercepted by a screen so as to secure detail in the shadows, and then a short exposure with the screen removed. Another example showed what improvement was possible under development, by developing, washing off, and re-developing certain parts after subjecting them to warmth.

A white face—in reality a yellow face—is very difficult to photograph, and when such a face is wrinkled the marks become terribly exaggerated. I have tried all possible ways, barring retouching, to obviate this, and perhaps the best way is to photograph the subject in a thin green light.

One of the most useful apprenticeships is found in photographing textile stuffs, such as satin, in conjunction with a model. I get a cheap model, drape her in different stuffs, and photograph her under different conditions of lighting, and I know of no practice that teaches me more. Another useful task is to set before oneself an idea, and make up one's mind to carry it through to the end. A painter, of course, does precisely the same thing; he makes various preliminary sketches, and in this way works his way to his goal. Now, look at this attempt to reproduce an old picture; and in order to show you the working out of the idea, I exhibit my first attempt on a 10 × 8 plate, and also my second attempt. These are not pictures, but they are certainly not flukes. The idea has been attempted and worked out; whether good or bad is beside the question.

Here is a study which I am engaged upon, and I hope to show you the finished result some months later. It is a study from Astarte. (In this example the figure of Astarte was apparently floating in space, over faintly-defined clouds.) The effect of floating in the air is obtained in this way. I used a yellow background, in which was a hole. Through this hole a beam of wood rojects which supports the model. A little flour is blown over the dark background to give the effect of clouds.

It is difficult to get a model who will not exhibit some sign of weariness after, say, a couple of hours' posing. Never let a model wait too long before uncapping the lens. I humbug her, giving imaginary exposures over and over again until she gets used to it, and quite at her ease. I then watch my opportunity, and get just the expression I have been aiming for. It is as well to use a plate slightly bigger than actually required, so as to allow for any lateral sway on the part of the sitter.

Another trouble is the nervous working of the mouth on the part of some sitters. Here is a valuable hint. I once had a model who was possessed of an ugly mouth, and she knew it. When photographing her I told her to squeeze it up as tightly as she could. Directly she began to relax the muscles, I insisted on her squeezing it up. At last I would say, "Now you need not do it any longer." The relief to her was so great that immediately the muscles relaxed, and the mouth assumed a pleasant expression—then I took my opportunity.

Here is a picture which is interesting in another way. The nose you see is straight enough, but the original has a pug nose. I have not retouched my negative in the least. What I did was to rub the nose of the model with a little vaseline, and by this dodge I get the line of light which a retoucher would put on the negative. But he would destroy the anatomy of the nose. I do not; the vaseline is there on the nose itself. My picture of "The Sybil" in the Salon is one, the model of which was smudged all over, not only with vaseline, but also with fuller's earth.

As an example of the harmfulness of retouching, I show you a portrait of a lady taken in the studio here, and you will notice that there are certain unevennesses on the forehead, and certain marks below the mouth which give a great charm to the face. A retoucher would have destroyed these characteristics, and would have spoilt the portrait.

There are various means by which drapery can be improved in effect. A semi-transparent stuff is often improved by having underneath a yellow stuff, which gives force to the lines and folds. It is also advantageous to wet drapery with spray apparatus. In the picture already alluded to, "The Sybil," the model was dressed in dark blue material, somewhat glazed, and a wet sponge applied just before exposure produced the effect required.

With regard to a question raised about focussing with a spectacle lens, Mr. Bergheim said that he went by no rule. He had acquired the feeling of knowing when the focussing was right for any particular model. With a flawless child's face he focussed as sharply as possible; for other models, not so sharply. There is no royal road to learning, or to artistic effect. You may have your light from the right or the left, from the top or the bottom. In any case, directly you have produced the effect you desire, you have done a work of art. It may not be pleasing to others, but you have performed a feat all the same. It is not art to do that which you have not preconceived. I defy the slit man to put down on paper the effect he is going to produce.

Photography is brought to discredit by the ordinary professional portrait producer, who turns out pictures at so much per dozen. He plumps his sitter down, perhaps in a position quite foreign to him, and sometimes by a fluke produces a decent result. A painter does very differently. He seeks to *know* his sitter, and will try and get an opportunity of studying the face when the model does not know that he is being watched. It is by thus working at his subject that a successful portrait is achieved.

A TOUR IN BELGIUM.

BY CECIL M. HEPWORTH.

I.—BRUSSELS.

IT was on one of the hottest days of August last that we three—all amateur photographers—took train for Dover, *en route* for the Continent. The prospect of a holiday—always a delightful one—was especially so to us just now, for we were on our way to a *terra incognita* hitherto quite unexplored as far as we were concerned; and life in the hot and stuffy City of London had become so moist and dusty, that we all voted it not worth living. It always does get bad as holiday time approaches, but the heat this summer made it absolutely unbearable.

We were naturally in a state of great excitement, and not at all in the humour to brook the delays of railway travel in England. But the railway was the quickest means of getting from London to Dover, so we had to grin and bear it. We amused ourselves by gloating over guide-books and maps, settling our route, and deciding how much time we would spend at each place for which our circular tickets were available. We eventually decided upon the following programme, and to it we decided to adhere most rigidly:—From Dover to Ostend by steamer, thence without delay to Brussels. After spending three days here, by train to Antwerp, where we intended to stay for two days. Then by steamer up the Scheldt to Tamise, where we should find a train to take us on to Mechlin. Spend a day here, and take train in the evening for Brussels. A night here, and on by train next morning to Ghent, and thence to Bruges, where two days' stoppage would bring us to the end of our time. Our tickets obliged us to take the places in this order, though we might have spread the journey over thirty days if so disposed. We were so disposed, but sundry taskmasters in London said "*No.*"

To cut a long journey short, we arrived at Dover an hour late for the boat, which was timed to start at noon. Naturally, when our train—for which sundry excursionists had been waiting so long—arrived, they were in a hurry to be off, and we had little time to look about us. We saw, as in a picture, the Admiralty Pier, surrounded by the blue, sparkling sea, with its white-crested billows playfully chasing one another. We saw two huge paddle steamers lying under the lee of the great stone wall of the pier, snorting impatiently and half-defiantly at the not altogether unexpected delay. One, a comely boat with yellow funnels, was flying the Belgian ensign of black, yellow, and red stripes, and towards this we made our way. We saw the crowd of men and women who thronged the upper part of the pier. We saw the men take off their hats and wave them to their friends on our steamer; and we saw the girls, utterly regardless for the moment of the pranks the wind was playing with their hair and dress, wave their handkerchiefs, and kiss their hands, and call last farewells to those on board. The rest of our time was profitably spent in dodging the luggage which was falling in a continuous shower, whence, we did not at first discover. It afterwards transpired that it was coming down a sort of toboggan slide, fed at the top by half-a-dozen blue-jerseyed, stalwart Belgians, and received at the bottom and pitched into the ship by four or five more. Three short, sharp whistles, and we are off. The steamer seemed to tear across the water, and every revolution of her engines made a perceptible difference in the apparent size of Dover pier. The cliffs, "whose high, upreared, and abutting fronts" had seemed so immense when we were close, now quickly dwindled to a mere outline on the horizon. Shakespeare's Cliff, Dover Castle, the South Foreland lighthouses, quickly became indistinguishable. St. Margaret's Bay, Deal, and Ramsgate were the last to disappear, but soon they, too, were as a line of mist in the sky.

A CORNER OF THE GRANDE PLACE.

Wandering about the deck with our hand cameras, the time seemed to pass very quickly, and it was quite a surprise when we sighted low-lying, featureless land, stretching as far as the eye could reach, in a long, unbroken line on the starboard side of the vessel. Another half-hour on our quick-flying ship, and we could discern three or four villages lying at regular intervals of five miles or so, each looking like a row of bricks stood on end, so regularly were their houses placed. And now we could see that the farthest of these villages, as they appeared, was much larger than the rest; and presently, with the aid of a field-glass, we could see the long, white lighthouse, and knew we were approaching the end of our sea trip—frivolous, fashionable Ostend. The sea-shore seemed to consist of sand, backed by miles of undulating, grass-covered sand dunes, precisely similar in appearance to the low-lying land known as the sand-hills between Deal and Ramsgate on the opposite shore.

Ostend is the queerest-looking place imaginable as seen from the sea. It looks for all the world like a number of coloured wooden toy-houses, taken from one of those oval wooden boxes packed with brilliant green moss, so familiar to childhood, and ranged in one straight line along the sea front. As we came closer we expected to see bright emerald-green trees with red trunks glued to round yellow discs for stands, dotted here and there in front of the many-coloured houses, but we didn't. However, we had not much time to comment upon the strangely unreal appearance of this town of toy-land, for we were now at the landing-stage, and prepared to disembark. After a brief tussle with the Custom House officials, we were hustled with but scant courtesy into the train by the noisy, blue-jacketed porters, who seemed to think it their duty to give everybody they could get at a push, and to shriek into his ear in half-a-dozen different languages at once. As none of the languages happened to be English, we were rather doubtful as to whether we were in the right train or not. The one interpreter on the platform was being pestered by a crowd of anxious individuals of all sizes, nationalities, colours, and tongues, and as the train started just as we were trying to decide whether we would add to them or not, we thought it better to remain where we were and take our chance. It was ten minutes to five before we were safely on our way through this strange land. At least it seemed strange to us, who had, but such a brief time since, been in noisy London. Here all was quiet. The country, as seen from the railway, appears to be very fertile, well cultivated, and well watered, but the surface is as flat as a billiard table, and the foliage consists of low-lying bushes and tall trees, with all the leaves at the top. I do not know who planted those trees, or what purpose they serve, but, like everything else in this country, they stretch in perfectly straight lines for miles. Every time you look out of the carriage window you see nothing but green fields, intersected by straight lines of bushes, and straight canals; and, far away in the distance, that same interminable straight line of trees. It ought to be called "Rectilinear-land" say we, taking a hint from the lens-maker. We saw some cows, and thought they must have been imported, they looked so English. Belgian cows should surely have been patriotic enough to stand in straight lines. We felt quite friendly towards those cows, and, if we had been in a Chatham and Dover express, we should have patted them as we passed, but we were not going slowly enough for that. One thing struck us as very strange: all the agricultural labourers we saw, both men and women, were working in a recumbent attitude, some lying on their stom—I mean chests—digging up the soil apparently with their finger-nails; others curled up, either asleep, or picking the kindly fruits of the earth with their hands. We thought at first that they were all stricken down with cholera, but saw afterwards that they were only at work. What a curious country it must be, to be sure, where the harvest is gathered in literally by hand, without the aid of sickle or scythe, and where the land is ploughed up with human finger-nails.

It was past six o'clock, Greenwich time, which is used throughout Belgium now, when we arrived at Brussels, very tired and hungry after our long journey. We made our way with some difficulty through the crowd of screeching hotel porters, each of whom was most vehement in his endeavours to kidnap us and our baggage for the particular house which he represented. If those men were sharp, they must have picked up some English swear words on that occasion. We made straight for a somewhat unpretending hotel, close by the older portion of the town, which, as we rightly guessed, would be the chief scene of our photographic bombardment on the morrow. The only drawback to this house, which had been recommended to us by a friend in London, was the fact that no one there could speak English, and neither myself nor my companions were great at either French or Flemish, which share between them the honour of being the language of the place. However, by dint of much gesticulation, many grimaces, shrugging of shoulders, and counting on our fingers, we at length succeeded in ordering a three-franc dinner each, and three bedrooms. We were awfully hungry after our day's travelling, or I do not think we *could* have tackled the copious and sumptuous repast placed before us. The next morning—Sunday—we awoke to find it pouring with rain, so we went to high mass at the Cathedral of St. Michael and St. Gudule. That is its full name, but in real life the name of the former saint is always left out entirely. They don't think anything of male saints in Belgium. It is a fine building, at the top of a hill.

PALAIS DE LA NATION, BRUSSELS.

In the afternoon we visited the picture galleries, which contain thousands of pictures by old masters, which are very much alike. Some, of the Inquisition, are very interesting, being painted with a horrible attention to details; and there are some very ancient representations of the temptation of St. Anthony, and other sacred subjects, which are, I suppose, meant to inspire dread and holy fear, but which sent us all into uncontrollable fits of laughter at their grotesque rendering of Scripture and shamefully bad drawing. I must not forget to mention the Musée Wiertz, an exceedingly interesting collection of paintings by a man who, I believe, went mad after he had executed them. I think anyone would go mad who looked at those pictures for long; the weird horror of them exceeds any nightmare I have ever experienced.

We walked back from this gallery through the "Parc," the most beautiful promenade in Brussels but one, that one being the Bois de la Cambre. This park has a number of statues placed at intervals on either side of the broad avenue, and as the trees are tall, and the foliage very fine, the combination is very pleasing, and formed the subject of many pictures. The park is surrounded by palaces and Government offices.

On regaining the hotel, after "doing" the park and picture galleries, we felt that we could not eat another three-francer, and endeavoured to tell the *garçon* so, with, however, but partial success. "Nous ne pouvent mangez pas cette dinner à trois franc," I explained, but he looked puzzled. Then a bright idea struck my companion. "Si nous mangeons le trois franc diner, nous busterons," he ejaculated gleefully, but without the desired effect. After a brief period of embarrassment on both sides, during which the poor *garçon* alternately scratched his head and shrugged his shoulders, we shouted as loud as we could, "Three-franc dinner not; 'ne pas,' 'jamais,' &c.," and then held up two fingers, and said solemnly, "Two-franc dinner," three times, as if repeating a charm. He understood at last, and went sorrowfully away to order it.

But this was nothing to the trouble we had next morning, when we tried to find out where some of the objects of interest were to be found. The *garçon* hadn't the faintest idea what we were driving at when we talked about photographing, sketching, and so on; nor, when we put it all into broken English did he take it on in the least. We gave it up as hopeless, and, bearing in our minds the good old English proverb, we sallied forth in search of a policeman. But we didn't find any, which fact reminded us of our far away London home, sweet home.

It rained intermittently all the morning, but between the showers we took a number of photographs, which, to our surprise, considering the weather, turned out remarkably good. The Grande Place, a large open space in the middle of the city, closed in on three sides by very picturesque and highly-decorated ancient guild houses, and the fourth side occupied with the grand Hôtel-de-Ville, formed the subject for a large number of pictures; but a greater attraction to us, as hand-camerists, was the flower-market, held in this square, where picturesque, brightly-dressed women vended their flowers and fruits under the shade of immense coloured umbrellas, while old women trudged about on the stones in their wooden *sabots*, leading the vegetable and fruit carts, drawn by dogs, which supply the stalls all round. It was a sight to warm the cockles of the heart—metaphorically speaking—of any artist who saw it for the first time. We eagerly snapped off a dozen plates on the pleasing scene. Have you ever heard thirty women discussing the latest piece of gossip, in a language which is a mixture of French and Flemish? If not, you cannot have the faintest idea of the feelings of the poor architect of the tower of Babel when his builders struck for another penny an hour. We wandered about the back streets of the city that afternoon, and found much food for our cameras.

THE HÔTEL-DE-VILLE, BRUSSELS.

Our first impression of this beautiful city was that it was much finer than London; but afterwards, when we came to examine it more closely, we changed our minds. The reason of this is, I think, that on the Continent they make so much more of their buildings than we do in London. For instance, take the Law Courts. In Brussels, as in London, they are quite new, but in the former these beautiful buildings are situated upon a hill, and at a dignified distance from all other edifices. As a consequence, the effect of this noble structure is commanding and dignified, looking down like a great king upon the city lying at its feet; but in London the houses and shops are hustled together at such familiarly close quarters with the Law Courts, that it is quite impossible to even see more than a small portion of the building at one time, to say nothing of photographing it.

Near the Palais de Justice is the Church of Notre Dame, which we photographed because it looked so old; and opposite it, in a small square, are the colossal statues of Egmont and Hoorn on their way to execution. We took a few photographs here, and a few more in the Botanical Gardens, near at hand; but, try as we would, we were soon obliged to turn back again to the beautiful old square, with its ancient guild-houses looking grander than ever in the rosy glow of the setting sun, and the wonderful Hôtel-de-Ville, whose tower rose, like a grim, old sentinel, grand and beautiful still, keeping watch over the treasures below, and striking awe and admiration into the hearts of all beholders. Grand at all times, in the early evening this place is sublime.

(*To be continued.*)

* * *

Derby Photographic Society.—The first meeting of the winter session was held on Tuesday evening last at Smith's Restaurant, Victoria-street, Mr. Keene presiding. The subject for the evening was "Photography and its Application to the Detection of Crime"—a paper by Dr. Paul Jeserich, illustrated with about forty lantern slides, and read by Mr. A. H. Bennett.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, OCTOBER 27, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. XI.—The Two Exhibitions.

BY the time this article appears, the two exhibitions will have run about half their course. That there has been more than the usual *one* this year has been put down to various causes by various people, all more or less incorrect. The Salon at its inception, and for some time afterwards, met with so much opposition and ridicule, that a few words of explanation seem necessary for those who have not followed the course of events, and to inform those who still profess not to be able to understand why we cannot make one exhibition serve all purposes.

It would help towards no good end to go into minute details, or to uselessly rake up old sores. It may be sufficient to say that, for some years, many of those who employ photography for pictorial purposes have felt that the Society which was originally promoted for the cultivation of photography as one of the branches of the fine arts (the first paper read, curiously enough, strongly advocated diffusion of focus) was degenerating into a chemical and optical society, and an arena for disputing over theories and processes, to the total exclusion of photography, as we understand it, as a practical art. At last the situation became not a little strained, when, in the first draft of the Council's report for 1891, the following words appeared —in reply, I think, to complaints that there was seldom any allusion to, or papers on, pictorial or practical photography :—" Although the meetings of this Society *should be devoted to the scientific rather than the artistic side* of our subject, an occasional paper on practical picture-making would be welcomed." For this gracious condescension artists possibly ought to have been most grateful ; but it struck some of them that it may be " not too late to seek a newer world," and perhaps do some little towards promoting the cause of that part of the art to which they had devoted themselves, instead of frivoling over the elements. These things take time, and I personally contented myself for the moment with a sort of protest in an article in the PHOTOGRAPHIC NEWS of April 3rd, 1891, headed " Quite Another Thing," in which I endeavoured to point out that it was becoming time that we practised photography instead of only talking about it. We had already a stock of theory to last us for many years' practice, and it seemed only right that the Society should teach something of the art which was the mainstay of their annual exhibition, and that there should be a more definite separation between the science and art of photography. The end was precipitated by a little episode that occurred at the opening of the following exhibition, and to which I need not farther refer, for the only consequence of it was to hasten us a little and confirm our purpose. Shortly afterwards, a body was formed to promote the cause of pictorial photography, and to the action of that body the present Photographic Salon is due.

The difference between the constitution of the two exhibitions may be shown at a glance. The exhibition of the P.S.G.B. consists of the works of members, and of those outsiders whom the prestige and medals of the Society induce to contribute and pay for their space. The exhibits are a miscellaneous collection of works of art, photographs of industrial processes, local views, portraits, views from balloons, and of falling from balloons, trade enlargements, specimens of paper and plates, illustrations of books, micrographs, transparencies on glass, and lantern slides, all mixed up with cameras, lenses, new developers, " Nameit," view meters, and lanterns ; the chief educational object appearing to be to name in the catalogue the process by which each photograph was produced. A picture is not so much shown as the outcome of artistic skill or taste as an illustration of a process. It is altogether a very useful show to those who care for such things, but it no longer expresses the progress of photography in artistic achievement.

The Salon, on the contrary, admits one kind of exhibit only—pictures which suggest some kind of artistic culture in the exhibitor. Nothing about processes is mentioned, either on the mounts or in the catalogue, and no frame is admitted containing more than one picture. Of course, all the works admitted are not up to the highest standard—an exhibition of masterpieces is impossible—and there are some that would still be looked upon as eccentric. Some astigmatics, for instance, that should be looked at by the timid cautiously, and under medical advice, but not many; and any deviation from the ordinary mechanical result of the ordinary exhibition that showed thought or skill was welcomed. Critics, however, who are sometimes slow to learn, were astonished to find that the quiet education they have been imperceptibly undergoing during the last two or three years enabled them to look at pictures they once thought wanting in sanity as scarcely eccentric. In these fast times the madman of to-day is the dullard of to-morrow.

It must be confessed that it a little touched the tender feelings of some of those who promoted the Salon to find how near to the dead level of hopeless mediocrity the Exhibition of the P.S.G.B. appears this year to have been reduced,' redeemed, however, from the worst by the presence of two or three exquisitely bad prints, which the good-natured and perhaps humorous judges have medalled. There are doubtless a few good pictures, but they are lost in the muddle of injudicious hanging, and there are two or three prominently hung that a moderate sense of delicacy would have rejected. (I do not allude to the nudes.) An exhibition that has nothing to show in its three centres of honour better than a trade enlargement, a frame full of plates, and a carbon enlargement, excellent as it is, of a rhinoceros of the name of "Old Jim," cannot expect to be a success, although it may perhaps be said with truth, as it has been repeatedly said during the last month, that there are no *very* bad pictures, except some of those honoured by the judges.

It has been freely said that the award of the medals gave great dissatisfaction. It is not so bad as that; there must have been at least half a dozen surprised and delighted recipients. Nobody has attempted to defend the judges; therefore I feel inclined to say a word or two for them. What are unfortunate judges to do when they have poor material to work upon? They were all exceptionally able men, and they, presumably, selected the best pictures the show afforded. The pictorial experts are well known, and have well-won reputations to sustain; the scientific experts were, surely, beyond suspicion.

It is not quite clear which medals were given by the pictorial and which by the scientific experts; but we cannot be far wrong in assigning the first medal in the catalogue to the scientific savants. It is not a picture, but a series of photographs illustrating mining industry, and to know that every operation is rightly performed must require a minute scientific knowledge of the work to which pictorial judges cannot pretend. The next, Mr. Cadby's "Child," comes within the province of the art judges and might pass; the next—a collotype—was both pictorial and scientific, and worthy of the prize. Mr. Sinclair's "Omegna," also, is a charming little picture. "After Sunset" is a good example of the mild sunset which is in fashion at present.

Now we come to "The Proud Turk," by J. S. Bergheim, which has supplied the best photographic joke for a quarter of a century. It is well known that the pseudo-scientist, who thinks he is a photographer, loves a process so that he may explain all about it to his admiring friends. Here was one provided for him. A really grand head, apparently printed on canvas of a bilious yellow colour. Here, again, we want information. Was the medal given by the one set of experts for the grand head, or by the other for the bilious process? Those who really know everything stood around the picture looking wise; everyone had a different explanation, but they all agreed that it was a process that must fade. For the action of HS on $A_gO\ NO_5$, in presence of organic matter, *must* cause a reaction that is fleeting. But I need not re-tell an old joke. Everybody has heard Mr. Bergheim's explanation of this mysterious process which everybody knew and nobody guessed correctly—just a transparency backed up by ribbed blotting-paper, and nothing more.

Now we come to the group of nude figures, by Count von Gloeden, to which a medal was awarded. It has been a vexed question whether the photographic nude was admissible for exhibition, but these figures are treated so delicately and artistically that I have not heard a word of objection to them. The next medal is for 248, with a poetical title. This picture (the exhibitor has since explained) was produced from a borrowed negative. The Secretary of the Society appears to have decided that the omission of the name of the original producer of the picture would not affect the award, but I should have thought that was a question for the judges. The medal was, I believe, given for the *picture*, not the process of enlarging and printing. Neither can the taker of the negative lay any claim to the medal for a picture for which the enlarging, printing, mounting, framing, and "doing the poetry" (if so we are to understand the enlarger's claim to "inventing the title") are done for him. Next, and last medalled picture, comes Miss Fitz's much discussed "Waiting and Watching." This photograph is either sublime or ridiculous. But which? I leave it to the judges.

I have scarcely left room for a final word on the Salon.

The Salon was fortunate from the commencement in being able to secure the adhesion of the principal exhibitors, not only of Great Britain, but of the Continent and America. Every member is an enthusiastic pictorial photographer, and all, while being experts in the means, look most to the end. It is the final result, not the process, that attracts most of their attention, and in their works each has a distinct individuality. Their first exhibition was, of course, a speculation. It was fortunately much promoted and advertised by opposition, and success has justified some rashness. Detraction is conquered; those who opposed at first have ended nobly by giving valuable help, and it may be almost said, as was said of the congregation of Goldsmith's village preacher, that "those who came to scoff remained to pray." The press laid on their best critics, who gave more space and thoughtful consideration than ever exhibition had before. The private view was well attended, and it pleased the promoters to see R.A.'s and A.R.A.'s eagerly discussing the pictures; above all, the great British public found us out and flocked to the gallery.

It is only just to add that the principal part of the work—and few know who have not gone through it how enormous the work of instituting such an exhibition is—has been done by Mr. G. Davison as chairman of the Organising Committee, and Mr. A. Maskell as hon. sec., assisted by many willing workers, while Mr. C. W. Hastings put his offices freely at our disposal, and when I say that we nearly crowded him out and stopped his business for some days, the reader may guess the sacrifice.

Yet another word. The exhibition has been a great pleasure to its promoters, but it has caused corresponding pains. The rejected still haunt us. You cannot get half a gallon into a pint pot, even if the liquor is of the best quality, and we found that we had nearly five hundred pictures more than we could hang. Naturally we used those which we thought the best, though there were many rejected, not for want of great merit, but because they were unsuitable to the kind of exhibition. Those pictures that were sent and not hung would have made a far better exhibition than is usually seen. Among them would be found works by nearly every one of the one hundred and nine exhibitors whose names appear in the catalogue, including some of those of the humble writer of this paper.

PHOTOGRAPHIC CONGRESS.

COLLOTYPE DEMONSTRATION.

BY W. E. DEBENHAM.

In giving a practical demonstration of collotype Mr. Debenham, in his introductory remarks, pointed out that collotype depended upon the fact that gelatine in conjunction with bichromates undergoes certain changes when exposed to light; the gelatine becomes insoluble in hot water, and does not to any appreciable extent absorb cold water. In lithography a porous stone is employed which, where it is imbued with water and a little gum, resists greasy ink, but in parts previously greased will not resist the ink. A collotype plate, imbued with water, will retain the ink applied to it according to the extent to which its gelatine image has been rendered non-absorbent by light.

The glass plate employed as a basis is first ground; some use flour emery, others prefer to use it not quite so fine. If plates have been previously used they are put into an acid solution which loosens the film and are then ground. When sufficiently cleaned and of a fine matt surface the glass plate is rinsed under the tap and placed in a rack to drain. A substratum is employed to hold the sensitive film to the plate. If this were omitted the gelatine would strip off the glass directly the inking roller was applied. Joseph Albert, of Munich (from whom Mr. Debenham originally received instruction), employed a substratum for his plates, which consisted of bichromated gelatine and albumen, and he exposed them to light from the back. This hardened the coating and cemented it to the glass, but since then the water-glass substratum method has come into general use. This consists of a treacly solution of silicate of soda mingled with the popular compound known as "four ale." A good proportion is one ounce of silicate to three-quarters of a pint of beer, and before use it should be filtered through nainsook or fine muslin. In the course of a few days or even hours this solution will deposit a quantity of siliceous matter which will render it quite unfit for use. It must, therefore, be used quickly, and should be filtered three or four times over. The ground-glass plate is flowed over pretty freely with this mixture (never mind spilling a little, for it does not cost much), and is racked and dried. After drying, the plate may be used at once, but it is customary to leave it for twenty-four hours, then wash in water, and once more dry.

The sensitive gelatine coating, which is to be applied above the substratum, consists of one ounce of gelatine, thirty grains of potassium bichromate, a similar quantity of ammonium bichromate, and fifteen ounces of water. The gelatine is placed in water to swell, and is afterwards melted by heat. To the mixture is added forty minims of a 1 to 24 solution of chrome alum for the quantity given, so as to harden the gelatine to some extent.

After coating the plate with this mixture it is placed in a drying box, which may be of wood with a sheet iron bottom, over which may be placed an inverted iron dish so as to diffuse the heat. Within a few inches of the p of the box should be an iron grating with levelling crews. A good spirit level is essential, for the plate ust be perfectly horizontal while in the box. Beneath he sheet iron bottom should be placed a small gas stove, nd the box is completed by a cover consisting of a frame overed with black calico and lined with muslin, which llows part of the moist air to escape. From the centre f this lid projects an ordinary bath thermometer. The emperature aimed at should be about 130 degrees, and t that heat the plate should be dry in about two ours.

The plate thus prepared is put in a strong printing rame against a negative. It must be remembered that he collotype plate when finished will give a reversed rint, and if this should be an objection, a reversed egative must be employed. The plate should be asked by an edging of tin-foil, which will guarantee clean margin to the prints.

With regard to exposure, some can tell by the brownness of the film when the operation is complete ; but it is etter to use an actinometer as a guide. In the absence f this a silver albumen print may be printed twice, using negative of about the same density as that from which he collotype plate is printing, and by that time the collotype plate will probably be exposed sufficiently.

The plate is now removed from the frame and put in old water for two hours, after which it must be allowed o dry spontaneously. When it has been washed, the ack of the glass should be carefully cleaned, after which he plate may be fixed on a lithographic stone with laster of Paris so as to minimise any risk of breakage.

There are two kinds of presses which may be used for rinting collotypes, one, the ordinary lithographic press nd the other the "Albion," or platen press. The litho ress has a zinc platen, and an oil-paper mask is used to reserve the purity of the white margins. When the late is fixed in the press, it is thoroughly moistened with sponge, after which it is dabbed over and partly dried, ntil you can no longer see any shining places, with a pad ade of soft material, such as that known as butter loth.

The ink used must not be too thin, and there is some ifficulty in using one which is thick, for it is difficult to pread evenly on the slab and roller, and is apt to remain n patches. A good way, at all events for those unaccustomed to the work, is to thin the ink with turpentine n the slab, which may be of glass or stone, roll it up, nd leave it for an hour so as to allow the turpentine to vaporate. The best plan, perhaps, is to use a very stiff itho ink, mixed by means of a palette knife with "middle arnish," then add a drop or two of turpentine and roll p on the slab. Some workers use two different inks of arying consistency, first a stiff ink and then a thin one. t is possible to obtain five hundred copies from a single ollotype plate on a hand machine, but many more can be btained when steam-power is employed, as the plate in hat case does not wear out so soon.

Mr. Debenham followed the various operations described, by practically demonstrating how the different arts of the work were carried out, and his remarks were istened to with the greatest interest.

THE PHOTOGRAPHIC SALON.

Second Notice.

THE public have been liberal in their patronage of the Exhibition at the Dudley Gallery, so much so that its promoters have no hesitation about regarding this as the first of a series of annual exhibitions of the art side of photography. We are glad that this is the case, for, as we have before pointed out, a little healthy, and, we must add, friendly, rivalry can do the parent Society no harm, and there are certainly enough recruits to the photographic army to well support two metropolitan shows. We will now continue our review of the Salon pictures.

If ever diffusion of focus was justified, and indeed called for, it has been in the case of No. 122, "Rain." Your rain-cloud is a fine diffuser of spray and of focus, and it often renders nature as "fuzzy" as the most impressionistic could desire. The effect is well reproduced in this picture, which scores still another success for Mr. Bernard Alfieri. It is fitting as a companion picture to No. 130, "Wind," by the same hand, which we have already noticed. No. 132, "Head of a Painter," by A. Buschbek, is most effective and old-master-like, if such a term can be allowed, and one has almost to coin a word to describe many of the portraits here, which are happily as unlike the usual studio and show-case variety as limestono is unlike Gorgonzola. Mr. Henry Stevens is not at his best in No. 137. The wintry landscape is beautiful enough, but the figures are stiff and common-place. Albeit we sympathise with him in the difficulty of getting anything picturesque out of the common London street boy, even though he is sliding upon ice, amid natural surroundings. No. 140, "Margin of the Lake," is a beautiful study, by Mr. Richard Keene, of Derby. It is a very small picture, and therefore likely to be overlooked amid its neighbours of more aggressive size ; but it is a little gem in its way. No. 141, by Horsley Hinton, "A Pasture by the Sea," is another effective landscape, which owes its chief charm to a fine, broad cloud effect. We have always regarded the photographic work of Mr. Hinton with great respect, for he brings to his camera a practical knowledge of art. This is exemplified in many a sketch which we have seen from his pencil, or, rather, from his pen, and a man who can draw well makes, as a rule, a far more competent photographer than he who can only talk about art. Mr. Hinton has some more pictures here, Nos. 176, 177, 182, 183, and 184. These are all landscapes, the first-named being a heath scene with fine cloud effect. The worst that can be said of some of these pictures is that the subjects are, some of them, wanting in interest and incident, and this is particularly true of Nos. 177 and 182. One of his best is 183, where, with a pool of water and a few trees, he has been able to secure a fine painter-like result. Baron Albert von Rothschild is a capable photographer, as many previous works attest, and he has more than one picture in this gallery which merit examination. In No. 185 we have a study which, the catalogue tells us, is an imitation of the Italian school of the 16th century, and in this imitation the photographer has succeeded admirably, producing a fine vigorous portrait study. Another effort to imitate an old, but different style of art, is seen in Mr. W. Crookes' "Comte de Nevers, in Les Huguenots," No. 188. This photograph looks like an old mezzotint engraving, and the idea is further worked out by printing the title in imitation of copperplate, with many flourishes, and even to the pattern of the gold and black frame. A little yellowing of the paper would have made the imitation perfect. No. 142, "Twilight," by A. J. Golding, possesses artistic qualities, but it might have been much improved by more judicious printing. The same effect could be produced, if one desired it, by printing any negative of good quality as well as possible, and then submitting the proof for a few months to the blandishments of London smoke. Possibly the picture suffers somewhat from the close proximity of No. 145, "Silver Shore," by Karl Kreger, which is in a similar low key, but has brilliant chromatic passages in the foreground in the shape of wet ripple marks on the sand, which, catching the sky light, gave the picture its name. In 150, "Evening Effect near Bosham," and 152, "Bosham, Sussex," we have two more pictures from the same accomplished hand, in which gloom is again relieved by light effects of great beauty. The Exhibition is rich in portrait studies by Mr. Bergheim. His "Sybil of Granada," No. 147, and "Gipsy Queen," 143, are examples of rough, semi-savage women, and are most vigorous as portraits—though we feel a regret somewhat that they are hung so near together, for the same model has been used in each. No. 155, "Penserosa," on the other hand, represents the more tender aspect of womanhood, and is undoubtedly one of the finest pictures in the room. Mr. Bergheim teaches us much by these portraits, which are so different to the common run of camera work. No. 146, a reproduction of a bas-relief—"Endymion," by Harry Bates, A.R.A.—is, of course well done, as anything by Mr. F. Hollyer is bound to be. No. 151, "By Mead and Stream," by A. J. Jefferys, is an example of the manner in which a good subject can be spoilt by injudicious printing. It is too patchy, especially the sky, which, with a subject consisting of broken ground, should be subdued so as to give the wanted relief. Glancing at No. 156—another little gem of Mr. Keene's—we come to a fine sunset effect taken at Killarney by Mr. Harry Tolley, whose pictures are always worth looking at. This presents one of the best cloud effects in the Exhibition, and if it is not printed from one negative, then two have been joined so cleverly that it is impossible to detect any signs of the operation.

There are two excellent portraits here by Mr. Myers—one, No. 161, of a young lady, and the other, No. 165, of Mr. Gladstone. This is a very fine portrait of the venerable statesman, who has the peculiarity of never repeating himself in his photographs, every one being different from the others. This possibly may have some connection with the versatility of his character.

Major Nott in his "Corner of an Egyptian Village," No. 167, gives us a very interesting picture of lazy life in the sunshine of Egypt—idlers and beggars crowding beneath an old wall—a shadow sweeping across the foreground with very fine effect. The same worker in No. 216, "Native Hut on the Karoo, South Africa," gives us a peep at nomadic life, which is also of an interesting character. Major Nott has evidently been far afield with his camera since last he exhibited any of his pictures. The Exhibition has very few architectural studies, but there are one or two that call for attention. No. 168, by Baron Nathaniel von Rothschild, represents the gate of the Cathedral of Cagliari (Sardinia), with two priests in front in friendly converse. Another, and better, picture by the same hand is No. 190, entrance to an Algerian mosque, with two figures on the steps. Both pictures exhibit excellent work. One of the few *genre* pictures here is No. 172, "A Break in the Daily Toil," by Mr. J. B. B. Wellington. This represents a workman at the village ale-house, being helped to a glass of beer by a small waitress. The picture is well conceived, and the surroundings are admirable, but Mr. Wellington might have been more fortunate in his models. In a picture of this kind one looks for a typical son of toil, and a typical waitress, but, as we know, these are more easy to describe than to obtain when one wants them. For want of space we must leave the remainder of the pictures for review next week.

(*To be continued.*)

CORRESPONDENCE.

THE N.A.P.P.

Sir,—With reference to our next Council meeting, to be held on Friday, November 10th, 1893, 3 p.m., at the premises of the Central Photographic Club, Coleman's Hotel, Henrietta Street, Covent Garden, London, I have received the following letter from one of our members, Mr. W. P. Marsh, Waterloo Square, Bognor:—

"I venture to suggest that the meeting might be made a little more of a *social* character. Let the members have an opportunity of meeting and making themselves known to one another. It struck me, when at the meeting last year, that many of those present were strangers to one another; some coming from a long distance to meet and part *strangers* to each other, not having had the opportunity of an introduction. I am aware that there is necessarily a considerable amount of business to be got through in one evening; but I think that half an hour's interval, to enable members to have a friendly chat, would do much both to make the evening pass pleasantly and induce more to attend.

"I feel satisfied that a stronger meeting might be got together if the 'bill of fare' is more enticing.—I am, dear Sir, yours faithfully,—W. P. Marsh."

Now, I heartily agree with the kindly remarks of our excellent member, Mr. W. P. Marsh. The writing of such a letter is strong evidence of the "possibilities" of the N.A.P.P. in its collective capacity. No one can for a moment doubt, if the Association were supported numerously by the profession as it deserves to be, that we should find month after month fresh subjects cropping up, and suggestions made by members, and questions arising for the action or consideration of the Executive, in the interests of the members and the profession generally.

I beg to be permitted to inform your readers how gladly the profession will be received at the meeting—November 10th, 3 p.m.—and that a general meeting of professional photographers will be held at 7.30 p.m. (same place); also that I shall be very pleased to entertain the members of the profession, who may desire to co-operate with us, at a friendly tea, &c., say 5 p m., if they will honour me with their company; an early intimation of their intention to be present will contribute to the comfort and convenience of my brother professionals. I am convinced that social intercourse will not only break down stiffness and promote kindliness, but that it will bring an accession of members to the mutual advantage of the entire profession. I would also take this opportunity of pointing out the advantages offered by the new Photographic Club, now definitely established at Coleman's Hotel, Henrietta Street, London.

Thos. Fall.

THE SALON.

Sir,—If the examples hung at this Dudley Gallery Show are indicative of the future of camera work, Heaven help photography. Some of the pictures are—well, passable; many are ridiculous; and a few are positively comic. Let me take two only. I have often suffered from headache, but I never had the curious experience of seeing one framed and glazed until I visited the Dudley Gallery. No. 196, called "The White Robe of Winter," is the "thing." I like the word "thing." It is useful in a case like this, where "picture" is quite inadmissible. Why it should be called the "White Robe," &c., no one but its perpetrator can have the remotest idea. "The Dirty Doormat" would be far more to the purpose, and in sober earnest I believe I could get the same effect—but I don't want to—by photographing such a mat while it was being shaken on a doorstep. While I was at the Gallery, one visitor there was who seemed to admire this thing. He explained to his lady companion that the nightmare was full of effect if you only went far enough away from it. I took the hint, and breathed freely by the time I arrived at the other side of Piccadilly. But before leaving this exhibition of eccentricities, I paused in front of one called "Their Favourite Pasture," No. 224. "Are those things meant for sheep?" I mentally ejaculated. It was not at once that I saw the photographer's joke, but suddenly it dawned upon me; he had apparently borrowed from some dealer at Smithfield a number of New Zealand muttons, wrapped in their "white robes" of calico, and had scattered them about on Hampstead Heath or somewhere else, and had photographed them. Of course they have no legs or heads, but this trifling omission is screened by screwing the whole bag of tricks out of focus. This is all very well as a joke, but I ask you and your readers, Mr. Editor, does it advance photography one jot? The sooner we get back to the honest silver print of ten years ago the better, say I.

Antifad.

WOODFORD PHOTOGRAPHIC SOCIETY.

Sir,—May I ask the favour of space in your columns to call the attention of photographers residing in the neighbourhood of Epping Forest to the formation of a Society at Woodford? In commencing we have nearly twenty members, and shall welcome all who may be willing to co-operate in working to make our Society a success. Our meeting nights are the first and third Thursdays in each month, and our officers for the first year are—President, Mr. H. Wilmer; members of Council, Messrs. E. B. Caird, Henry Crouch, and H. T. Malby.

Henry W. Bennett, Secretary.

Dacre House, Arundel Street, Strand, W.C.

THE BENEVOLENT.

Sir,—We have very many applications for the loan of a camera, or money to purchase a second-hand camera, from men who are perfectly willing to work, but who have been forced down by illness and other circumstances. If any of your readers had old apparatus that is still light-tight, though otherwise superannuated, we could make good use of it; and as our grants this year have far exceeded our income up to the present, and as we have in prospect many urgent applications owing to the extremely bad photographic season, we feel loth to spend money on even the cheapest of second-hand cameras if we can obtain old disused ones from sympathisers.

H. Snowden Ward, Hon. Sec.

Memorial Hall, Ludgate Circus, E.C., October 16th, 1893.

P.S.—Stout soled boots, clothing, and hats we can well dispose of if any readers can spare them.—H. S. W.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

18,975. Gabriel Stokes, 55, Parliament Street, London, "Image Finder for Hand Cameras and other purposes, showing the image on a plane situated at any angle round the axis of the lens by rotating mirror."—*October* 10*th*, 1893.

19,129. Chr. Harbers, 18, Buckingham Street, Strand, London, "A Postcard for Photographic Use."—*October* 11*th*, 1893.

19,199. August Zimmermann, 24, Southampton Buildings, Chancery Lane, London, "Improvements in Photography" (Raphael Edward Liesegang, Germany).—*October* 12*th*, 1893.

19,206. Etienne Jules Marey, 323, High Holborn, London, "Improvements in Chrono-photographic Apparatus." (Date applied for under Patents, &c, Act, 1883, Sec. 103, March 20th, 1893, being date of application in United States.)—*October* 12*th*, 1893.

19,239. Josiah Pumphrey, King's Heath, Birmingham, "Improvements in the Mode of, and Means for, Draining and Drying Photographic Plates."—*October* 13*th*, 1893.

19,282. Alfred Watkins, 28, Southampton Buildings, Chancery Lane, London, "Improvements in Instruments for Calculating Photographic Exposures."—*October* 13*th*, 1893.

19,304. John Dunseith McKellen and Samuel Dunseith McKellen, 2, Clarence Street, Albert Square, Manchester, "Improvements in Photographic Cameras."—*October* 13*th* 1893.

19,333. Alfred Allen Barrett and Albert John Evis Hill, 57, Chancery Lane, London, "Improvements in, or connected with, Photographic Pictures."—*October* 14*th*, 1893.

19,330. Edwin Henry Hardy, Commercial Street, Sheffield, "Improved Adjustable Support for Photographic Printing Frames."—*October* 14*th*, 1893.

PROCEEDINGS OF SOCIETIES.

The Affiliation of Photographic Societies.

Tenth Meeting of Delegates, at 50, Great Russell Street, W.C., Tuesday, October 17th.—Mr. E. **Clifton** (Photographic Club) in the Chair.

The minutes of the last meeting were confirmed.

The report of the sub-committee appointed to consider the question of endeavouring to obtain from the railway companies concessions to photographers similar to those to anglers, in which the committee stated that they had made inquiries but were unable to recommend any course which would hold out a reasonable chance of success, was adopted.

It was proposed by Mr. P. **Everitt** (London and Provincial Photographic Association), seconded by Mr. **Hodsoll** (North Kent Photographic Society), and carried, "That the Secretary be instructed to communicate with the principal railway companies with a view to securing for members holding return tickets the privilege of breaking the journey at any intermediate station."

The report of the Conference of Judges was adopted unanimously, and the Secretary instructed to print and publish the decisions arrived at by the judges.

The question of certain additions to the rules was taken up, and it was decided to submit the following alterations to the Council of the Photographic Society of Great Britain for its approval :—

1. That after rules 1 and 2, as at present standing, a rule as follows be inserted :—

> "The object of the Affiliation is to consider and suggest lines of action to photographic societies, and to take any steps it may think fit to encourage or otherwise benefit photographic societies and similar organisations and their individual members."

2. That after rules 3 and 4, as at present standing, a rule as follows be inserted :—

> "The committee shall meet at such time and place as the chairman shall decide. On the requisition of ten delegates the secretary shall call a meeting not less than fourteen nor more than twenty-one days after receipt thereof. At committee meetings nine shall form a quorum."

3. That after rule 7, as at present standing, two rules as follow be inserted :—

> (*a*) "A balance-sheet of the accounts of the Affiliation shall be prepared by the treasurer up to 31st December in each year, and shall be audited by two auditors.
>
> (*b*) "The annual general meeting of the committee shall be held during January in each year. At this meeting the balance-sheet duly audited, and the chairman's report of the year's proceedings, shall be submitted, and officers, consisting of a chairman, treasurer, and two auditors, shall be elected for the current year."

4. That the rules be then consecutively numbered.

On the proposal of Mr. **Everitt**, seconded by Mr. A. F. **Taylor** (Ealing Photographic Society), it was resolved to petition the Photographic Society to remit to members of affiliated societies the wall-space charges at the exhibitions, pointing out at the same time that they knew of instances in which other exhibitions had received exhibits which would have come to the Photographic Society's Exhibition had it not been for the wall-space charges.

London and Provincial Photographic Association.

October 19th.—Mr. P. **Everitt** in the Chair.

Mr. T. C. **Hepworth** showed a large number of lantern slides of the scenery and characteristics of the Lake district. The accompanying explanatory lecture will be given in next week's issue.

The **Chairman**, in thanking Mr. Hepworth, said that he might congratulate himself on getting such a good set of slides, and added that he hoped that evening might prove to be the inauguration of a very successful series of lantern nights during the winter months.

The **Chairman** seeing Mr. Henderson present asked if he would favour them with any information concerning the production of vitrified photographs on enamel plaques, the manufacture of which had recently been demonstrated by Mr. A. Haddon.

Mr. A. L. **Henderson** said that he had not done anything in enamels for six years. He thought it a pity that Mr. Haddon had not gone more fully into the composition of the enamel. He thought that an important matter—arsenic—was sometimes used, and oxide of tin sometimes. The tin enamel composition was much to be preferred. Arsenic altered the resulting picture. He would suggest the use of two parts of tin enamel and one part of flux. Tin gave warmth to the platinum image. With tin a colour could be obtained ranging from grey almost to a blood red.

Mr. **Haddon** thought that phosphate of lime was often used ; arsenic would volatilize.

Mr. **Henderson** continued that he never got the quality of work with a gas furnace that he did with an open fire. The blacks and whites were more brilliant with the latter. He noticed that a question had arisen as to the practicability of touching up with the substitution process. He considered that the colour was more likely to match with that than with the dusting-on method. When the enamel was fired a second time the copper was apt to chip off at the edge. He always used to scrape the edge of the enamel before putting it a second time into the muffle.

Mr. **Haddon** said that he advised the coating of the inside of the muffle with red lead, as that made a soft surface to which particles thrown off would adhere. Originally he had intended to make the enamel composition himself, but found that he could purchase it very cheaply. He hoped some time to go into the question of making the enamel composition.

Mr. **Henderson** said that sometimes a scum was found on finished enamels, and on one occasion from this cause there had been a complaint of fading. It was, however, easily removed by rubbing with a little putty powder.

Putney Photographic Society.

Ordinary Meeting, Thursday, 19th inst., at 8 o'clock.—Dr. J. F. **Farrar** in the Chair.

Mr. **Baldwin**, of the Eastman Company, gave a lecture and demonstration on "Solio" paper. In the course of his remarks Mr. Baldwin said the best results were probably obtained from negatives with a tendency to softness, but good prints could also be made from negatives suitable for any of the other usual processes, as well as from some with which this was not the case. The paper has considerable keeping qualities, but, as with all commercial printing papers, it was advisable to use it when fairly fresh. Damp was a danger to be carefully avoided, and for this purpose the paper should be kept in closed tubes or boxes, and an india-rubber pad should be placed next to it in the printing frame. Printing would be found to proceed rapidly, generally twice as fast as when using albumenised paper, and it would not be found necessary to the depth required by this process. The printing should be regulated with a regard to the subsequent treatment, rather more deeply for prints to be toned in the combined bath, or to be finished with a glossy surface, than for those to be toned and fixed in separate baths or to be finished with a matt surface. The "Solio" being an emulsion paper, there was no danger of it staining the negatives when placed on them in the printing frame, as was not infrequently the case with other papers having free silver on the surface. Reference was then made to the various toning formulæ given in the instructions issued with the paper, and their action and characteristics explained. These baths were, after careful experiments, recommended by the company, but the paper could also be successfully treated with others, and no doubt many workers would find out for themselves a bath which would readily and with certainty give the tones which they most admired. With the combined toning and fixing bath no preliminary washing was necessary, and it was also, in other respects, convenient; but toning beyond the brown should not be attempted, as a greenish tinge would be the result. He recommended that this bath should only be used once, a fresh bath being made for each batch of prints. When working with the separate baths a preliminary washing was necessary, and upon its thoroughness depended largely the success of the subsequent treatment. Temperature had great influence on the toning bath; 40 to 50 degrees had been found advantageous, and in hot weather it was desirable to cool the bath with ice. The use of alum was also recommended for hardening the film. After toning, the prints should be thoroughly washed before being passed into the fixing bath; this should be made up in accordance with the formula, the sulphite of soda helping to preserve the purity of the whites. The washing after fixing should be continued in running water for about an hour, and, where running water was not available, in about twenty changes. The prints could be finished in various ways. If simply dried and mounted they could be burnished, care being taken that the temperature of the burnisher should not exceed 170 degrees. For glossy surface the prints should be squeegeed on to carefully cleaned plate glass or ferrotype plates, and for matt surface on to finely ground glass. In either case it might be considered desirable to back the prints with suitable paper to preserve the gloss or matt when mounting. Gelatine was, perhaps, the best mountant; any containing indiarubber in any form or degree should be shunned for this paper. Mr. Baldwin went fully into all details, and ably answered a large number of questions addressed to him by the members, who throughout followed his lecture and demonstration with interest.

Monday, November 6th, at 8 p.m., at Boys' Gymnasium, Charlwood Road, Mr. S. Herbert Fry, on "Unconventional Printing Methods."

Brixton and Clapham Camera Club.

The last meeting of this Club was held on Tuesday, October 17th, the chair being taken at 8 p.m. by the President (Dr. Reynolds, F.R.G.S.). At the conclusion of the ordinary business, the President read a paper on the Diazotype Process—*i.e.*, printing in aniline dyes.

About 1890, a new dye, named primuline, was discovered by Mr. Green, of the firm of Green, Cross, & Bevan. This dye, which is very soluble in water and yellow in colour, has a strong affinity for all kinds of vegetable fibre, and so strong is this affinity that it is only necessary to soak the fibre for a few moments in a dilute solution of the dye and a perfectly fixed primrose colour is the result. After the material is dyed it is immersed in a bath of nitrous acid, and a surface is then obtained which is of a deep orange colour and very sensitive to light, and if this surface is exposed to the action of sunlight or a strong light, the deep orange colour bleaches to a pale primrose, and after washing in water remains at this tint. If, however, before exposing to light, a portion of the surface is protected by covering with, say, a fern leaf or a dense carbon positive, it will be found that the portions of the surface so protected are not bleached, but remain of a deep orange colour, which they had upon removal from the nitrous acid bath.

If now, an alkaline solution of $\frac{1}{4}$ to $\frac{1}{2}$ per cent. of, say, betanapthol is applied, the portions unacted upon by light will become of a splendidly red colour, the parts acted upon remaining simply a pale primrose colour, requiring only to be washed and dried. Other aniline derivatives applied as developers give rise to other colours—blue, orange, brown, yellow, maroon.

The process is admirably suited for ladies' use, because such articles as tablecloths, curtains, coverlets, panels for doors, mantelboards, &c., of a most ornamental kind can be readily produced. It is only necessary to print in sunlight for a few minutes. It must, however, be remembered that this is a positive process, consequently a positive must always be used to print from.

If a material such as a layer of albumen stained with primuline is dried, heated to 212°, and then developed with pyrogallic acid and sulphite, a deep clear sepia stain is produced on a pale yellow ground, and this will bear almost any amount of amplification; and if a sensitive surface could be obtained quick enough for camera exposure, the negative could be enlarged to any extent without showing a trace of the structure of the substance on which the actinic impression was produced. This would indeed be perfection in photography for astronomical or micro-photographic purposes.

A practical demonstration, which followed, proved conclusively the simplicity of the process, and the members present were delighted with the results produced.

On being asked by the President, Mr. Cross, of the firm referred to, then kindly gave a thoroughly detailed account of the process, pointing out also the cheapness and uniform success of the results to be produced. His firm would be ever ready to assist those desirous of taking up this beautiful process.

A vote of thanks to Mr. Cross concluded the proceedings of the evening. It may be mentioned that the materials and necessary chemicals can be obtained from Messrs. Watson & Sons, High Holborn, W.C.

Next meeting, November 7th, "Lantern Slides by Reduction," by Mr. Butler.

Woodford Photographic Society.

At the meeting on October 19th, the rules as passed at the preceding meeting were confirmed.

The President then gave his opening address, speaking of the improvement, both in methods of working and in final results, that always follows the intercourse among photographers that a society gives. He wished, too, that the members of the new society would freely bring their work for discussion at the meetings—not their successes only, but their failures. There being no apostolic succession in photography, the only road to success must be through failures, which should never discourage, but be valued for the lessons that they teach. In concluding, he impressed upon the members the necessity of individual work if they wished to be successful, expressing the hope that by the co-operation and work of the members, the Woodford Photographic

Society might take an honoured place amongst the foremost societies.

The President then vacated the chair (which was taken by Mr. Caird), and read a paper on "Some Modern Printing Processes," passing in review albumen-silver, gelatino-chloride, gelatino-bromide, platinotype and carbon. In regard to gelatino-bromide he said that almost any class of picture could be obtained, the strength of the light used in printing exercising a powerful influence over the vigour of the finished print. The results, too, might be considered permanent. Descriptions of the platinotype and carbon processes, their simplicity, artistic beauty, and permanence, and the principal points to be considered in order to ensure successful results, concluded the paper.

In order to illustrate the various processes, the President showed some of his own bromide and carbon prints, bromide prints by Mr. A. R. Dresser, platinotypes by Mr. Frederic Hollyer, and carbon prints by the late Mr. William Bedford, and by the Autotype Company.

A discussion followed on the practical working of the different processes.

West Surrey Photographic Society.

There was a large gathering of members of this Society and their friends, on Wednesday evening, at their headquarters, The Library, Lavender Hill, on the occasion of the opening of the winter sessions, Mr. Winsford, vice-president, in the chair. The certificates won at the last exhibition, and prizes won in the monthly competitions during the summer months, were distributed by the Chairman. After the distribution, a good collection of slides by members of the Society was put through the Society's new lantern. The slides most admired were cloud effects by Mr. Graham, figure studies by Mr. Martin, and studies of animals at the Zoo by Mr. Bond.

At the next meeting, November 1st, a demonstration and lecture on "Lantern Slide making" will be given by Mr. Fry.

Nottingham Mechanics' Institution Camera Club.

The first meeting of the present session was held in Room No. 75, under the presidency of Mr. W. J. Abel, B.A. There were present, Mrs. Richardson, Mrs. Fraser, Mrs. Brown, Mr. Councillor A. Pyatt, Messrs. T. Hodgson, Holbrook, T. K. Gordon, Clarke, Fewkes, A. Hartley, H. Derry, Cooper, A. R. Hartley, R. L. Worham, Pearson, T. S. Piggin, Weinberg, Gisborne, Mrs. Radford, Mrs. Holbrook, Misses Whittam, Proctor, Shaw, Gordon, the Hon. Sec., J. T. Radford, Mr. T. C. Hine, F.S.A., and others.

The minutes of the last meeting were read and confirmed.

The nominations of six new members were received.

After which the Chairman introduced Mr. T. K. Gordon, who attended, by special request of the Committee, to give an exhibition of his slides of the River Trent, dealing with it from its source to its termination in the Humber. The exhibition was very interesting, bringing to the notice of the audience places seldom visited or seen, both in the county and out of it.

On the motion of Mr. T. C. Hine, F.S.A., seconded by Mr. Radford, a hearty vote of thanks was accorded to Mr. Gordon for the pleasure which his exhibition had afforded the members and friends.

Slides were also shown, kindly lent by Messrs. Holbrook, Fewkes, Cooper, and Hartley.

It was announced that the mounts for exhibition and competition prints could now be obtained.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Violet.—1. The only fault in the prints you send is that the exposure to light has not been sufficient. Print considerably deeper than you wish the finished picture to appear, as density is lost in the subsequent operations of toning and fixing. We should recommend you to continue to use the toning bath, as it is evidently a good one. 2. Certainly. We shall be very pleased to hear how you get on.

T. P. C. (King's Norton).—1. The reason of the yellowing of the high lights is, probably, that you have used the toning bath for too many prints. 2. Why not try the combined toning and fixing bath? Here is a formula :—

Hypo	6 ounces.
Sulphocyanide of potash	1 „
Acetate of soda	1½ „
Alum	96 grains.
Distilled water	21 ounces.

Add 100 grains of chloride of silver, and, after 24 hours' filtering, add :—

Chloride of gold	15 grains.
„ „ ammonium	30 „
Distilled water	6 ounces.

Vups.—We cannot tell without first seeing the negative, but many good negatives contain portions which are quite black.

H. P. (Penzance).—There is no reason why you should not use the blow-through jet with the two gases from cylinders if you prefer it, but the mixed jet would be more economical, and would yield more light. We should advise the use of regulators on the cylinders, as the flow of gas is difficult to control if you have to work straight from the valve on the bottle, and particularly so in the case under consideration, when the amount of the two gases delivered to the jet must be very carefully adjusted.

Artist.—The elementary rules of composition with regard to picture-making are given in H. P. Robinson's book on "Pictorial Effect in Photography," of which a new edition has just been brought out.

A. H. (Barmouth).—There are a large number of mounting mediums on the market, suitable for albumenised paper, all more or less good, but common starch made with boiling water will be found as good as most. Place the print, face downwards, on a sheet of clean paper, and rub the starch in with a stiff brush or with the fingers, until it lies perfectly limp. Then place it in position on the card, and rub from the centre outwards with a damp cloth.

Colbrom.—You will find an article on working the collodio-bromide emulsion process for lantern slides in the "Year Book of Photography" for the present year. We have not space here to answer your questions at length.

A. P.—By all means send us some prints. We shall be pleased to answer your questions.

Juno.—The article on a "Cycling Tour in Brittany" appeared in the Photographic News for June 9th and 16th.

Una P.—For bromide paper there is no better developer than ferrous oxalate, and you cannot do better than adopt the Eastman Company's formula as issued with their paper.

PATENT OFFICE LIBRARY

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1835. NOVEMBER 3, 1893.

NOTES.

WE are requested to remind our readers that the event of next week is the fifth annual exhibition of the South London Photographic Society, which is to be held at the Peckham Public Hall, from Tuesday until Saturday. There is a smaller hall attached, in which lantern, musical, and other entertainments will be given each evening.

A MATTER for serious consideration in arranging an exhibition of photographs is the method to be adopted for attaching the pictures to the walls. The usual practice with professional hangers is to screw little plates of tin to the back of the frames, and to drive a screw through these into the walls. This is all very well where the walls are boarded, as is often the case; but where lath and plaster have to be dealt with, other methods must be adopted.

ONE of the best and simplest plans is that in vogue at the present exhibition at the Dudley Gallery. Here the walls are furnished with wooden horizontal battens, with a space of about twelve inches between each. These, like the walls, are covered with a dark-red fabric. The picture frames have each a couple of long screws partly driven into their backs, so that the projecting heads catch on the battens, and are firmly held in place. The saving in time and expense represented by this method of hanging pictures is obvious.

THERE seems to be a field for photography in the production of fashion plates. The drawings at present issued with various publications are of the crudest and most faulty kind, and the only reason for retaining them would seem to be that no human being could possibly be found with a waist small enough or limbs long enough to serve as a model. We recently took the trouble to submit one of these wondrously built figures —as represented in a lady's newspaper—to comparative measurements, and we found that the head measured twice as much across as the waist.

SUCH a thing would, in nature, be almost impossible, even if the victim of tight-lacing were to adopt one of the Harness electric corsets, about which we have heard so much lately. But let us see how the figures would work out. The average female head measures about twenty-one inches in circumference, or, say, seven in diameter. The lady of the fashion plate has a waist which, judged by the size of her head, must be three and a half inches in diameter, or, say, a little more than ten inches round. Photography, with all its alleged faults of distortion, could hardly do as badly as this.

THE only way in which photography has been pressed into the service of the milliner is occasionally shown in some of the West End shop windows, where the best-looking girls from the counters have been photographed to show off a new hat or gloves. Surely the system could be extended with advantage to the published fashion plates.

THE Autotype Company have recently completed a very fine album containing some selected specimens of Colonel Gale's work, including his ever popular "Sleepy Hollow." It need hardly be mentioned that these pictures in carbon are of the most perfect character, and represent as close a reproduction of the originals as it would be possible to obtain. The same firm have also published a fine series of animal studies by Mr. Gambier Bolton.

IT is interesting to compare the pictures of these front-rank men with those taken by Colonel Stewart Wortley about twenty years ago, and one can do this at the Autotype Gallery, for here are some wonderful sky and sea studies, taken in the old wet-plate days by the last-named worker. They are quite equal to anything of the kind done in the present day, and at once refute the notion expressed the other day at the Photographic Convention, that nothing good was done before the advent of modern processes and apparatus.

Collectors of good things should note that the Woodburytype Company are issuing some splendid reproductions in carbon of the National Gallery pictures. In these beautiful productions the beauties of the originals are wonderfully brought out—modelling, texture, the very drag of the brush—all, save colour, are here. And as each picture is printed in a becoming tint, the absence of colour does not seem so much of a loss as might be thought.

The most recent specimens which we have seen of Woodburygravure are very fine, and one cannot imagine a better process for book illustration. It takes a place between collotype and carbon, for, while dearer than the former, it is much cheaper than the latter.

A correspondent of a daily paper suggests that the camera should be kept in readiness in case of any future rioting in the mining districts. He thinks "an instantaneous photograph would show beyond question the attitude of the peaceable colliers. And it would afford means for showing acts of violence, the flight of stones, and other missiles; and, what would be more important, the identification of the ringleaders." The writer expects far too much from the camera. We have our doubts as to the efficacy of this suggestion. Unless the camera were kept going by some chrono-photographic system, the chances of obtaining a picture at the critical moment would be exceedingly remote. The idea presupposes a certain amount of clear space between the mob and the camera, so that the view of the lens shall be unimpeded, and this is not at all certain to happen. Rioting is, as a rule, a very mixed-up affair, and doesn't lend itself readily to the photographer. Of course he could photograph the scene looking down upon it from a window; but, to adapt the words of Mrs. Glass, you have first to catch your window. A riot is very much a matter of accident, and it would be rather annoying if, after photographic arrangements had been made for a disturbance in one street, the mob and the police chose to come to loggerheads in another.

The latest Australian advices are not able to announce a cessation of the war of prices which the Sydney photographers are carrying on with so much bitterness. One well-known photographer is now taking cabinet portraits at the rate of one shilling each, "and this," says the *Australian Photographic Journal*, "is, as far as we know, the bottom price, and it is not at all surprising that sitters are swarming up in numbers." As we noted some time ago, the leading photographers recently held a meeting, with the object of bringing about some better understanding, but the effort seems to have had no practical outcome.

The Société Française de Photographie is forming a fund for the erection of a monument to Daguerre at Bry-sur-Marne, where the distinguished Frenchman died. The church at Bry, it is interesting to remember, is a curious example of Daguerre's ingenuity. The church is too high and too wide in proportion to its length, and, to make it seem longer than it really is, Daguerre painted upon the wall, on each side of the altar and behind it, the representation of the nave of a church. The perspective is managed with such dexterity, and the whole effect is so admirable, that the spectator believes that not only is the altar in the middle of the church, but that behind it commences a new church. "The illusion," says M. Balagny, who some time ago sent a description to the French Photographic Society, "is perfect." Daguerre carried out the principle of deceiving the eye in the grounds surrounding the house where he lived at Bry, and made what was really a small place assume the dimensions of a park. This property, which was bought for a religious body, is exceedingly difficult of access to strangers.

Dr. Johnson once asked, not by way of disparagement, however, what was the use of a new-born baby. One is tempted to ask in the same spirit, What is the use of taking photographs under water? However, the feat has been acomplished, and accomplished successfully, by M. Louis Boutan, with the assistance of a special magnesium lamp, the powder being projected across the flame by a pneumatic attachment. An evening paper recording the fact, says gravely of the results that "they are lacking as regards background; but this may be remedied when the apparatus has been perfected." What "background" did the writer expect to see in a photograph of water—fishes crowding round to find out what was the marvel which had penetrated into their midst?

National Association of Professional Photographers.—The meeting of the Council will take place at 3 p.m., on Friday, November 10th, at the Central Photographic Club, Coleman's Hotel, Covent Garden, W.C. Tea at 5 p.m.; general meeting at 7.30 p.m. For further particulars see our advertisement columns.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

Thiosinamine—New Toning Bath for Collodio-Chloride Prints—Clearing Yellow-stained Negatives.

Thiosinamine.

THE new fixing agent, thiosinamine, recommended by Herr R. Ed. Liesegang as a substitute for hyposulphite of soda, has been much discussed of late in the German photographic periodicals. Herr E. Valenta has made quantitative analytical experiments in order to determine the fixing power of thiosinamine on haloid silver compounds, and to compare it with that of hyposulphite of soda. The results of his experiments are to be found in the following tables :

I.—*Table of the solubility of chloride, bromide, and iodide of silver in thiosinamine at 20° C.*

Thiosinamine solution of the density of :—	Each 100 cc. will dissolve.		
	Chloride.	Bromide.	Iodide.
1 : 100 (water)	0·40	0·08	0·08
5 : 100	1·90	0·35	0·05
10 : 100	3·90	0·72	0·09

II.—*Table of the solubility of chloride, bromide, and iodide of silver in hyposulphite of soda at 20° C.*

Hyposulphite of soda solution of the density of :—	Each 100 cc. will dissolve.		
	Chloride.	Bromide.	Iodide.
1 : 100	0·40	0·35	0·03
5 : 100	2·00	1·90	0·15
10 : 100	4·10	3·50	0·30
15 : 100	5·50	4·20	0·40
20 : 100	6·10	5·80	0·60

These tables show that the dissolving power of thiosinamine (from one to ten per cent. solution) on chloride of silver is as great as that of hyposulphite of soda. In the case of bromide of silver, however, the fixing power of thiosinamine is about five times less than that of hypo, and in the case of iodide of silver the proportion is still more in favour of hypo. Herr Valenta has further observed that if a thiosinamine and chloride of silver solution is treated with a small quantity of an alkali, the solution blackens at once, and if it is heated and allowed to stand, a black precipitate will be produced, consisting of sulphide of silver. A trace of an alkali in the thiosinamine fixing solution will therefore act just as detrimentally as a trace of an acid in a hyposulphite of soda and silver solution, since if the prints treated with it have not been washed very thoroughly, they may eventually be liable to fade on account of the formation of sulphide of silver.

With regard to this latter statement it may be mentioned that in order to prevent the thiosinamine fixing bath from becoming alkaline it is only necessary to add to it a small quantity of an acid (as I have mentioned on a previous occasion, it will tolerate an equal bulk of an acid without losing its fixing power), and it is also well in the case of the washing water being hard to add to the latter a little citric acid or, still better, alum. As to the lower solubility of bromide of silver in thiosinamine solution, this fact was stated also by Herr Liesegang in his first notice of the matter ; but it is unimportant, since the thiosinamine has been recommended as a fixing agent, not for gelatino-bromide plates, but for chloride of silver prints. As to the price of the substance, it will, of course, be reduced should a demand arise ; already it is announced at 60 marks (£3) the kilogramme (about 32 ounces) against 90 marks previous to these researches. Moreover, it is not improbable that the allyl-sulphurea, as thiosinamine is frequently called, will be replaced by the cheaper simple sulphurea, which, as Herr R. Ed. Liesegang states, is more readily soluble in water than its allyl derivate, and by which also chloride of silver is dissolved quicker than by thiosinamine. The same behaviour of the simple sulphurea has been observed by the "Chemische Fabrik auf Actien (vorm. E. Schering)," and it only remains to be decided whether its results are as permanent as those obtained with thiosinamine.

New Toning Bath for Collodio-Chloride Prints.

Herr J. Gaedicke points out in an article which he contributes to the *Wochenblatt*, that of the various combined toning and fixing baths which have been recommended for collodio-chloride prints, those containing citric acid and alum endanger the permanency of the prints treated with it, on account of the precipitation of sulphur which is caused in the bath by either of these two substances. He has found that the citric acid may be advantageously replaced by boric acid, which, though it imparts to the bath the required acidity, does not decompose the hyposulphite of soda. The following formula is recommended by the author as a safe one with regard to permanency of the prints :—

Distilled water	1,000 cc.
Hyposulphite of soda	200 grammes
Boric acid	30 ,,
Nitrate of lead (dissolved in a portion of the water)	15 ,,
Sulphocyanide of ammonium ...	20 ,,
Chloride of gold solution 1 : 200...	60 cc.

A small quantity of black sulphide of lead is precipitated at first, but no sulphur, and the bath is entirely odourless and clear. It is necessary, however, to neutralise the prints (which always give an acid reaction) before putting them in the above combined toning and fixing bath, since otherwise a precipitation of sulphur would be produced. For this purpose the prints are at first well soaked in water, and then placed in a water bath to which a trace of ammonia or about one per cent. of carbonate of soda has been added. The prints are then rinsed with water several times to free them from the adhering alkali, when they are put in the above combined toning and fixing bath, in which they are allowed to remain until they become a little redder than it is desired ; after drying the tone becomes bluer. Beautiful tones are said to be obtainable with this bath, the whites of the picture remaining entirely pure.

Clearing Yellow-stained Negatives.

If the solutions of an organic developer, as for instance of pyrogallic acid, paramidophenol, &c., are exposed for some time to the air, they discolour at first, and subsequently an insoluble deposit, generally of brownish colour, will be precipitated. The body thus formed, consisting of an oxydation product of the pyrogallic acid, &c., is liable to settle in the gelatine film of the negative, and it will then be impossible to remove it by washing. To remove the yellow stain, it will be necessary to destroy this colouring matter without injuring the gelatine film. According to the experiments made in this direction by Herr R. Ed. Liesegang, the yellow stain produced by oxydation of paramidophenol hydrochlorate may be bleached to some degree by oxalic acid, and it will entirely disappear if the negative, without being freed from the oxalic acid, is exposed for about two hours to sunlight. A concentrated solution of sodium sulphite shows a strong bleaching action in the dark, and also a solution of stannous oxide hydrate in excess of citric acid acts favourably. The yellow stain produced by amidophenol may be easily removed ; it is almost entirely bleached even in the dark by stannous chloride and by sodium sulphite. That produced by pyrogallic acid is removed in the dark by citrate of tin, also by oxalic acid, which in this case acts better in the dark than in the light. The yellow stain produced by amidol is only partly removable by treatment with citrate and acetate of tin. Great care should, however, be used in employing stannous chloride and the other tin salts for this purpose, because the gelatine film is apt to be injured or even dissolved by them if they are used in a concentrated state ; the sodium sulphite, which is used after fixing, is therefore preferable except in the case of a yellow stain produced by amidol.

THE ENGLISH LAKE COUNTRY.

BY T. C. HEPWORTH, F.C.S.

If any one should contemplate making a visit to the English lake district he can hardly do better than go to Ambleside in the first instance, making excursions from that picturesque centre as opportunity may offer. I was, last June, led to take this course, and I obtained the hint by the simple expedient of consulting a map, for the map told me that within a short walk south of Ambleside was the head of Windermere, about an equal distance north was Rydal Water, Rydal Hall and Waterfall, and that a short distance from there another lake, Grassmere, could be reached. There were thus three of the English lakes within the compass of a short ramble from one another, besides waterfalls, glens, and other beauties, which seemed to make Ambleside a most advantageous centre. To Ambleside, therefore, I went, and found no reason to repent my choice.

It is a quaint village beautifully situated in a valley, the hills rising all round it except in a southerly direction where they open out towards Windermere. Windermere, although, I believe, the largest of the lakes, is tame in aspect when compared with the others ; moreover, it is so narrow that it has more the appearance of a river than of a closed-in piece of water. The hills surrounding it are not high, and they mostly slope gently down to the edge of the water, park-like in appearance and studded with private residences. Beyond a few sky and water effects I did not attempt any photography on Windermere.

One of the oldest, prettiest bits in Ambleside is the mill, which I now show you. It has been immortalised by Turner and by many other lesser artists, and has evidently not changed much in appearance during the past 100 years. At the time of my visit there was very little water; for, although the lake district is generally considered to be a very damp neighbourhood, it shared in the general drought of 1893, and the waterfalls were robbed of much of their usual grandeur. Ambleside is essentially a tourist rendezvous, and there are coaches coming in and out of the town continually, which run in connection with small steamers on Windermere. One morning, in a back lane, I came upon a picturesque smithy. There is nothing very noteworthy about my picture, save that it is taken with a hand camera. But the glory of Ambleside is Stock Gill (a gill. I should tell you, is a narrow ravine, with a rapid stream running through it). A bobbin mill stands at the entrance to Stock Gill ; but when I photographed it—again with a hand camera—there was certainly not water enough to make it bob, or do anything else. Turning our backs upon the bobbin mill, we can walk for half a mile or so up one of the sweetest ravines in the lake country There is hardly enough water to make a connected stream. It is more like a collection of deep pools, variegated by boulders. In the peat-stained water of these pools you can see the trout playing about by hundreds, and wondering when some rain is coming to refresh them. This is a lovely stream, which affords a picture at every few yards. Here, on a dull day, in the absence of wind, with a short-focus lens, stopped down, you have a photographer's paradise. You can either follow the river bed, or you can climb the high bank, which carries you sometimes fifty feet or more above it. The scenery is grand under both conditions. But you do not reach the highest point of the glen before you hear the sound of tumbling water, for you are approaching Stock Gill Force. The water here makes three falls, altogether seventy feet in height, and you will notice that the principal fall is divided into two by projecting rocks. After a few days' rain, I am told, the scene here is of the grandest description, the water playing over the rocks in a sheet of foam and amid clouds of spray. When I visited it, the water was half asleep.

I have already told you that Ambleside is a convenien centre from which excursions can be made, and one of the first which I undertook was to Rydal. The village has nothing interesting about it, save the house called Rydal Mount, where the poet Wordsworth lived for so many years. I did not go there, for the whole district is flooded with photographs of the place, and I was content to leave it alone. Close by it is Rydal Hall, the seat of Lady Le Fleming, and I was far more interested in this place because the grounds contain two noteworthy waterfalls. On my way thither I passed some rough ground, with a promising group of cattle perched high up on a granite hill. I stalked them, and had a shot at them. But cattle are the most unsatisfactory models, and always group themselves as badly as possible. Nor will they take a hint to do better; if you pitch a stone at them they simply move away.

On the main road, just outside the village of Rydal, is a mass of rock with steps cut in it so that one can reach the summit. Wordsworth is said to have chosen this point as a favourite resting-place. It is now so overshadowed with trees that nothing can be seen from the summit. Doubtless it was different in the poet's time. It is noteworthy that you are at liberty to climb these steps without paying for the privilege. You have to pay for most things in the lake district; it generally costs you a shilling to see a waterfall. This is certainly the case with the falls at Rydal. You call at a cottage for a guide, and the guide solemnly unlocks a side gate into the park and takes you there.

The upper Rydal Fall is half a mile from the one which we just saw. You can only see it from one point, and from the nature of the surroundings I do not think there is any other choice as to the position for your camera. If you want a more comprehensive view, you must therefore do as I did, and screw on to your camera a shorter focus lens.

Rydal Lake is one of the smallest in the district, but at the same time one of the most beautiful. It is not a mile in length and scarcely a third of a mile across, so that you can make the circuit of it in little more than an hour. But every step will open up to view fresh beauties; and you get so satiated with the loveliness of nature, that you feel the same kind of exhaustion as you do after an hour or two in a picture gallery. There are one or two islands on the lake, small as it is, and here the wild fowl congregate in peace, for no one can disturb them.

The guide-books to the lake district are most aggravating to read, for at every third or fourth page they quote Wordsworth. The copyright on that good man's works has run out and such quotations are cheap.

Near to this spot, on the high road, is Nab Cottage, where Hartley Coleridge lived.

In the lake country, if you want to take photographs, you must do a lot of trespassing. And this is not always easy work, for the usual hedges, hurdles, or gates are replaced by very stony stone walls, over which you have to climb at the risk of breaking your neck.

Here, on the left of my picture, you will see the kind of wall I mean. But some of them have loose stones artfully arranged on the top, so that, although you can climb up there, you find yourself on a very insecure place, and feel as if you and the wall too were on the point of tumbling down.

Continuing on the road by the side of Rydal Water you come to Grassmere, which is also a very beautifully situated lake. Far away at the head of the lake lies the village of Grassmere and Grassmere Church. This is one of the very ugliest churches in the kingdom, but the guide-books rave about it principally because Wordsworth and Hartley Coleridge lie buried there. It is so much photographed that I did not care to add to the number of pictures. But I changed my mind when far away by the side of a mountain rivulet I caught a glimpse of it through the trees. Here distance certainly lent enchantment to the view. Besides, there was no one to worry me with quotations from the deceased poet.

A conspicuous feature of the scenery of Grassmere is a strangely shaped conical hill called Helm Crag, of which this is a distant view. It is very beautiful on a cloudy day to watch the rapid changes which come over a mountain like this, when the shadows chase one another up the sloping sides, and foreground and distance are alternately bathed in sunshine.

A good pedestrian has a great advantage over persons who have to depend upon another animal's legs. He finds his way into nooks and corners where the common tourist never thinks of wandering. I discovered this years ago in the Highlands, and I rediscovered it in the English lake country. As an example of what I mean, let me show you a few views taken of a small piece of water known as Loughrig Tarn.

"A tarn," says the guide-book glossary, "is a small sheet of water usually high up among the mountains." Now, you know why the tourists don't go there; it involves a heavy climb, and there is nothing but water to drink when they get there. But it is a beautiful spot, and well worth the barking of your shins is the climb over numerous walls before you find yourself there. You run a chance of losing your way unless you carry a map and compass, as every wanderer should do, for houses are few and far between, and you meet no one among these solitudes.

Please observe the bit of disturbed foliage in this picture. I thought at first that this was a flaw, but showed it to a friend, and he raved about it. He was an impressionist. He said that, if the picture was his, he should destroy it, all but that bit in the corner; this he would frame, for, whenever he looked at it, he could hear the leaves rustling.

It is the fashion, as you all know, to set more store by a little figure study than by a landscape pure and simple. I do not agree with this notion. It is far easier to pose a figure by a cottage door, for example, than it is to conquer the difficulties of a view like the one before you. Any one who has tried to take a landscape like this, with distant hills bathed in sunlit atmosphere, will know what these difficulties are.

Leaving Loughrig Tarn, I made my way to Grassmere, and so home to Ambleside. On my way I passed through some exquisite scenery. Having spent a week at Ambleside and its surroundings, I resolved to go by coach to Ullswater. They charge you five shillings for the trip, and make you walk half the distance. Directly you leave Ambleside the coach begins to go up hill until you reach Kirkstone Pass, 1,500 feet above, after which you come to Brothers' Water. The guide-book says that this name is derived from the sad circumstances of two brothers having lost their lives here, and it adds, "an accident which occurred twice." Now, you can imagine a man losing his life once, but he must be abnormally careless to lose it twice. These guide-books are really not reliable.

(Mr. Hepworth then described how he arrived at Ullswater, and photographed the objects of interest round about that beautiful lake, once more returning to Ambleside through the picturesque village of Troutbeck, where he found many opportunities for camera work. His paper was illustrated by about sixty lantern slides.)—*London and Provincial Photographic Association.*

RECENT IMPROVEMENTS IN PHOTOGRAPHIC LENSES.

BY W. K. BURTON, TOKIO, JAPAN.

(*Continued from page 669.*)

ZEISS'S ANASTIGMATIC LENSES.

I HAVE given the precedence to the "concentric" lens, merely because, whereas I am able to speak of it after not only carefully testing it, but making use of it in practice, I can speak of the "anastigmatic" lens only by judging of the section of it as shown in drawings, by the descriptions of it in photographic periodicals, by results that have been sent me, and by what I have been told of it by correspondents in England.

It may be said that it ought to be just as possible to judge of the working of a lens by the examination of the results it produces, if undoubtedly authentic, all particulars being given, as by working actually with the lens. I can only say that, for reasons that I really do not know, I am, myself, not able to make such judgment completely, even if I get the negatives; very much less so if I get only prints.

The anastigmatic is issued with various angular apertures, from that of a portrait lens to that somewhat smaller than is usual with "wide-angle rectilinear" lenses. I think most will be interested particularly in hearing what I have been able to gather of the lenses of large angular aperture, that is to say, of rapid lenses.

To begin with, it appears that these lenses possess three qualities combined—to wit, large angular aperture, which means rapidity, flatness of field, and absence of astigmatism. Any two of these qualities combined may be found in other lenses, but, so far as I know, in the anastigmatics are to be found, for the first time, a combination of the three.

There is a further advantage that, in the case of these lenses of large angular aperture, using a small stop, they can (judging by the drawings of them) be used as wide-angle lenses. It may be said that, in the case of any rapid lens—a rapid rectilinear, for example—the use of a small stop makes it possible to increase the angle of view, and this is true to a certain extent; but a limit is soon reached on account of the way in which such lenses have to be mounted—in a comparatively long tube. At a very moderate angle the tube itself cuts off marginal pencils of light. The combinations of the anastigmatic lenses are mounted comparatively close together, and the pencils of light from a subject subtending quite a wide angle can pass the lens without being interfered with by the mount. A further advantage of the shortness of the tube is that illumination is more equal from the centre to the edge of the plate than in the case of lenses of the rapid rectilinear or rapid symmetrical type when using large apertures. It is claimed for the anastigmatic lenses that, on account of the complete absence of colour in the glass, they are, aperture for aperture, more rapid than other lenses, but of this I can state nothing.

As to how the anastigmatic lenses of small angular aperture compared with the concentric in the matter of flatness of field, I am unable to give an opinion. That the makers of the latter lens think well of the anastigmatics is evidenced by the fact that they are the sole licensees for the manufacture of the anastigmatic lens in England.

In this trade matter in connection with lenses, the inventor of the anastigmatic lens seems to have taken a new departure, in licensing one of the first opticians in each of the principal countries of the world to manufacture the new lenses. This departure would seem to be in the right direction.

It may be asked, "What have we to pay for all these qualities so remarkably combined in one lens?" Well, the answer is very simple—we have to pay money. The lenses are somewhere about twice the cost of lenses of the same focal length and aperture of other forms, even by the best opticians. After all, we cannot expect something for nothing. A really good thing is worth paying for.

Incidentally, I remark that a friend of mine, a Greek scholar, has pointed out that stigma means "a point," that astigmatic means "without a point" or "not a point," say "non-stigmatic," and that anastigmatic introduces a double negative, say "not non-stigmatic." Why, he says, should the lenses not be called "stigmatic"? Why, O why, Meinherr Carl Zeiss?

TELE-PHOTOGRAPHIC LENSES.

We now come to a novelty in some ways much more striking than either of these that I have been discussing. The tele-photographic lens is not, like either of these that I have described, the direct outcome of the new Jena glass. I do not know whether this glass is or is not used in any of the forms of the tele-photographic lens, but it is certainly not essential.

A practical tele-photographic lens has been a dream of photographers for a very long time. The *desideratum* has generally been expressed as that of a lens that "would give enlargements direct in the camera." The expression is a somewhat loose one, but defines well enough what it is that photographers have been feeling the want of.

Some two or three years ago, it was almost simultaneously announced by Mr. Dallmeyer and Dr. Miethe that the problem had been solved. There was some talk of priority. I do not know which of the two was really first in the field. I remember, however, that Mr. Dallmeyer had written to me privately about a year before the announcement of the invention that he was working at it, stimulated by a want expressed by Dr. H. P. Emerson for such a lens.

With the Dallmeyer lens I have actually worked; the Miethe I know only by description. The chief difference appears to be that, whereas the Dallmeyer consists of a small portrait lens, with a "negative combination" affixed, the Miethe consists of a lens of the rapid landscape type, with a similar appendage.

In using either lens a large camera may be found necessary, and in every case an image is got several times larger than would be got with an ordinary lens placed in the position of the telescopic lens.

A lens of this kind can be absolutely corrected for only one certain distance of object, and for one certain extension of the camera. With any other distance or extension there is some spherical aberration—that is to say, the image is not quite sharp, unless a small stop be used. From what I have read of the Miethe lens, I imagine that it is sent out adjusted for a distant object, and an average extension of the camera. The Dallmeyer lens, on the other hand, is sent out adjusted for a near object, with such an extension of the camera as gives a full-sized image. There is, however, an adjustment whereby the aberration may be corrected for any distance, or any extension of the camera, so that the sharpness may still be perfect.

It is not fair to compare two lenses without having used both, but, speaking subject to correction, I should say that the differences I have described mean that, while the Miethe lens is probably the most easy to handle, the Dallmeyer possesses greater possibilities. The Dallmeyer is, moreover, the more rapid of the two forms of lens.

I shall now describe the working of the Dallmeyer lens. In external form it is, to begin with, an ordinary portrait lens; but there is fixable behind it a tube about as long as the lens itself, or somewhat longer, which projects into the camera. At the back of this "internal extension" (if such an expression will be permitted) there is fixed a small lens, the "negative combination." It is the small part of the image that would, in the absence of this combination, focus just behind the position it actually has, that goes to form the enlarged image. The "internal extension" is screwed to the back of the flange from within the camera.

On the first trial, the camera is extended, and the lens is probably pointed to some brightly-lighted, well-defined object. We look on the ground glass and we see—nothing whatever—simply one dull blur. The milled head of the rack and pinion focussing arrangement is, however, turned, when, at a certain phase of adjustment, a surprisingly large image is suddenly seen on the ground glass, and probably as suddenly disappears, for this focussing adjustment has to be made to a hair's breadth to get a really sharp image, or one as nearly sharp as possible; for, as will be immediately explained, a really sharp image is not to be got at this stage of the proceedings, and the adjustment has to be only a very little out one way or the other to make the image disappear altogether.

As has just been indicated, it will not be found possible to get a really sharp image without making a further adjustment. This adjustment may consist merely in stopping down the lens very much, when the image is forced into sharpness, with, of course, a corresponding increase in exposure. Most will, however, prefer to make use of the "diffusion of focus" adjustment, whereby a sharp image can be got even with full aperture. This adjustment is made by unscrewing the back element of the back combination to a certain extent, and here it must be admitted that there is some little difficulty, for the adjustment can only be made by unscrewing the "internal extension," making a trial adjustment, and repeating trials till the exact adjustment is got. To overcome this difficulty, I have fitted my lens with gear, whereby the necessary adjustment can be made from without the camera.

Now, as to the powers of the lens, it will be found that using the same back focus—that is to say, the same distance between the posterior lens and the ground glass—the tele-photographic lens gives an image from about three to about five and a half times as large as is got by any ordinary form of lens, according to the extension of the camera, and the form of "ordinary lens" used. This is linear enlargement, or "diameters." At first sight these figures may not seem very great. If, however, we consider a case or two, it will be seen how enormous the advantage is. For example, six inches is a common enough focus for a quarter-plate. Say a single lens is used. We may, with the same back focus, get an image with the tele-photographic lens as large as could be got by a single lens of thirty-four inches focus.

(*To be continued.*)

Examination of Paper.—M. Stockmeier tests the papers on Kämmerer's principle for their behaviour with leaf-silver by stratifying five samples of the papers to be examined with leaf-silver, folding the packets together, and letting them lie for twenty hours at 50° between watch glasses in a place free from acids and hydrogen sulphide. If the metal is visibly attacked or discoloured, the paper is unfit for wrapping objects of metal. For the detection of sulphurous acid (which renders papers unfit for packing steel wares) the author distils 50 grms. of the sample in a current of steam in an apparatus filled with carbonic acid, and receives the distillate in iodised potassium iodide. Papers containing chlorides or alums are not suitable for packing articles of steel. Sulphurous acid or sulphites may be detected in papers by conversion into hydrogen sulphide by means of zinc and phosphoric acid. The absence of substances which give off hydrogen sulphide with acids must first be ascertained. For the detection of free sulphuric acid the author (in concert with Wurster) finds Congo paper too sensitive. He extracts 10 grms. of the paper in question with alcohol in an Erlenmeyer flask, concentrates the extract to a minimum with the addition of water, and tests the drop of liquid thus obtained with methyl violet. A simultaneous blank experiment must give a negative result.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, NOVEMBER 3, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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A RAPID PRINTING PROCESS.

THE coming of November days, which, in this country at least, are generally synonymous with gloom, if not fog, is not particularly welcome to any portion of the community, and is decidedly very strongly objected to by the photographic printer. When it becomes necessary to expose a negative to daylight for two hours or more, the operation becomes tedious, and he is apt to long for some method by which fickle English daylight can for ever be dispensed with. The worker in platinum has already been provided with a lamp by which he can obtain prints ready for development in a few seconds, and those who depend upon other processes often wish that they, too, had an artificial sun.

Although this boon has, as yet, been denied them, a method of printing has recently been devised by the Paget Prize Plate Company, which will materially assist those who work gelatino-chloride papers, opals, or lantern slides. It is a process which, as in the case of platinum, combines printing out and development, and it will prove, we think, of great benefit to both amateurs and professionals.

By invitation of the company we recently paid a visit to their works at Watford, in order to see a demonstration of this rapid printing process, and were by no means disappointed with the results shown. The room in which the experiments took place was an ordinary chemical laboratory, with yellow calico blinds; there was therefore abundance of light available. First a piece of chloride paper was exposed to daylight under a normal negative for a minute and a half. The day was unusually dull, or a much shorter exposure, we were told, would have sufficed. Removed from the frame this trial print was immediately transferred to a 10 per cent. bath of bromide of potassium, and left there for a minute or more. There was certainly a visible image on the paper when removed from the frame, but it was a mere ghost, and such an attenuated one that it was difficult to recognise any details. The bromide bath did not seem to improve matters, for when the print was examined it showed that the ghost had become more ghostly still, and had acquired a sickly yellow colour. The print was next placed in a dish under a water-tap for about three minutes to remove every trace of free bromide, and was now treated with a developer containing, among other ingredients, hydroquinone, carbonate of ammonium, and caustic soda. Under this treatment the image rapidly gained density, and changed to an orange hue; but before the finest details became visible the paper was once more thoroughly washed, and transferred to a sulphocyanide toning bath and finally fixed in hypo. The finished print was a thoroughly satisfactory one, and could not be distinguished from one produced in the ordinary way.

Next, an opal plate was treated in precisely the same manner, only that the exposure was slightly longer to meet the requirements of the denser negative employed. The finished result was a very fine specimen of opal printing, which left nothing to be desired. Finally, a lantern slide of the printing-out variety, recently introduced by the Paget Company, was experimented upon in the same way, and gave equally satisfactory evidence of the efficiency of the process.

It will be seen that the novel part of this useful process is the preliminary bath of bromide. It has long been known that immersion of an exposed gelatine plate in a weak solution of this kind will have a far greater retarding effect upon the image than if the bromide were added to the developer; but no one ever dreamed of using a solution as strong as 10 per cent., nor has it been previously shown that such a solution, applied to a very much under-exposed chloride image, would permit of such image being strengthened by development. The Paget Company must be congratulated upon this new method of rapid printing, which, with great generosity, they have made freely known.

THE PHOTOGRAPHIC SALON.

Concluding Notice.

STREET scenes do not, as a rule, make artistic photographs. The busy traffic and the countless passers-by, when crystallised by a snap-shot, must always prove interesting; but there is too much confusion, want of arrangement, and, more than all, the sense of movement arrested at the wrong time, and causing awkward attitudes to be depicted. All these things militate against a picturesque result, and the photographed street scene fails in everything but as an example of rapidity attained by modern methods and processes. This is mostly the case, at any rate, with regard to our teeming metropolitan thoroughfares. To get pictures, we must go abroad, where life and business do not move at such a rapid pace. In the pleasant picture representing a street in Waidhofen, which Baron Albert von Rothschild contributes to the Salon (No. 173), we have repose and other artistic excellencies which justify its place on these walls, while a smoky chimney—usually considered a nuisance by photographers—adds a haze to the distance, which lends a great charm to the general effect. "On the Top of the Tide" (No. 187), by B. Lintott, is a Thames scene taken just below London Bridge, with a picturesque Rochester barge in front, and a misty background, of which the unfinished Tower Bridge forms the most noteworthy feature. A wonderfully life-like and vigorous portrait of Professor Blackie (No. 178) is the work of Mr. William Crooke, and it at once arrests attention by its excellent qualities, close by which is a beautiful cloud effect by Karl Greger (No. 179), in which he again represents with good effect the broken reflections on a wet, sandy shore.

It has often been remarked that converts to any particular form of religious belief are more zealous in the performance of its rites than are seasoned members of the community. Certainly, some of the Salon exhibitors in their haste to testify to the faith which is in them regarding naturalistic photography, impressionism, or by whatever name it be called, have placed no limits upon their boldness in producing effects which are, as a rule, too sombre in tone to be startling, but are undeniably ugly. We fear that Hamlet would have classed them among those whom he described as imitating nature "so abominably." We feel a difficulty in criticising these efforts too severely, for we are convinced that they represent an earnest endeavour to place photographic art on a higher level than it has usually attained, and it may possibly seem unkind to suggest that some of these workers have mistaken their desire to do this good service to photography for the ability to accomplish it. Many members of the new school seem to imagine that a photograph can be transformed into a work of art by making it resemble as much as possible a sepia drawing, or a study in charcoal. The imitation is brought about by various devices. The lines can be softened or blurred by inserting between negative and printing surface a supplementary glass plate, or even by printing the negative wrong side before, and the lights can be degraded, or the picture fogged more or less all over by sunning the print. By such expedients, and by using a suitable printing medium with a certain amount of skilful manipulation, any photograph almost can be made to look like what it is not. The finished result bears little resemblance to what an unsophisticated printing from the same negative would produce. Perhaps a new art is foreshadowed in these practices, an art in which the worker will dispense with the camera altogether, and will draw with a ray of light upon a sensitive surface, as a painter uses a brush. Certainly the camera has little part in the work under consideration, beyond furnishing an outline to be filled in as fancy may dictate. Of course we are open to the charge of being incapable of appreciating the beauty of these productions, just as we often fail to recognise the loveliness of children, whose parents regard them as specimens of Nature's finest handiwork.

We have all of us heard from Mr. Rowland Briant how such a picture as No. 196 can be produced by using a lens designed for the relief of that abnormal condition of the eyesight known as astigmatism. Almost precisely the same effect could be secured by shifting the paper beneath an ordinary negative laterally twice or thrice during the operation of printing. No. 197, by the same worker, looks like an oil sketch, which, while wet, has been swept across with a badger hair softener. Honestly, we fail to see the object of such work; but as we have already indicated, this may be due, not to the fault of the producer, but to our own infirmity. No. 207 is a well-lighted and clever portrait, by Mr. Howard Baker, who would have done well to have adopted a printing method capable of giving a warmer tone to his work. "Ploughing," by G. W. Ramsay (No. 210), is unfortunate in its lighting, the figures standing out against a bright sky, the ground being hidden in shadow, while across it is a straight line, that may be a path, a highway, or a railroad, we cannot tell which. One of the chief beauties of a ploughing scene is entirely missed here; we mean the difference in texture between the freshly turned furrow and that which has received its bloom from the dry air. The effect is most beautifully shown in one of Rosa Bonheur's paintings, and we have seen it once or twice well expressed in a photograph.

Mr. George Davison has a number of photographs here which are interesting principally because they show the effects produced by printing in platinotype upon various surfaces, including the roughest of rough drawing papers, canvas of different grades, and nainsook. But he has not done justice to a reputation which has been gained by much excellent work in the past. He seems to have looked at Nature through smoked glass, and to have done his best to reproduce the effects thus observed. "It is not always May" sings the poet, but at the same time it surely is not always drear December—and one of the sunniest years of the century has surely given enough opportunities for brighter pictures. The work which we particularly take exception to is No. 225, "Path over the Sand-hills"; for sand-hills in sunlight are so beautiful, and the delicate gradations of light and shade in this yielding and silver-like soil can be so faithfully reproduced by the lens. Witness the little picture which took a medal last year at Pall Mall. But in Mr. Davison's "Path" all such tender gradations are ignored; the sand is a light patch, and the stunted bushes above it are dark patches, that is all. Once more it may be our infirmity that causes the picture to strike us in this way, but the impression remains. In No. 230, "Blythburgh Common," Mr. Davison has given us a wonderfully perfect piece of composition, a large number of sheep which have apparently been willing subjects, so well are they posed, backed by a pleasant woodland scene. Just such a scene as a painter would have chosen, and Mr. Davison with his artistic instinct has recognised its picture-making possibilities. But out comes the smoked glass, and an eclipse of the sun follows.

No. 243, "The Quay, Orta," by J. A. Sinclair, reminds us of one of Stanfield's brightest landscapes reduced to a small and delicate line engraving by one of the cleverest workers upon steel, so exquisite is it in its delicate detail and flawless light and shade. Those who think that little can be done on a quarter-plate should study this gem. There is also good work in some small pictures contributed by Mr. H. E. Davis. There must always be a tendency to ignore small work, especially when it is overshadowed by more pretentious frames; but these will well repay careful examination. "A Portrait of a Lady" (No. 247) may, by reason of its small size, also suffer eclipse, but it should be well studied; it is by Mr. Bergheim. Two good pictures, by Mr. B. G. Wilkinson, are Nos. 249 and 250. The first is a charming village scene, and if one wished to be hypercritical, it might be suggested that the light on the sheep is rather too strong with the sun so low and so hidden by clouds. Here are a number of fine portraits by Mr. Hollyer, all vigorous in execution, and as unlike the stereotyped cabinet or *carte-de-visite* as anything can be. It is in view of such work as this that the painter has reason to feel jealous of the onward march of photography. Colour is, of course, necessarily absent; but the likeness is indisputable, and the warm colour afforded by carbon printing, coupled with masterly management of light and lens, leave, indeed, little to be desired. The wondrous effect of sunlight on marshy land is well seen in "The Never-ending Fen," by C. B. Moore—a picture which could easily have been spoilt in the hands of an impressionist. Mr. Hollyer's "White Frock" (No. 260) may be called a photographer's picture, for only can a practical photographer appreciate the great difficulties of getting such wonderful gradations out of a white garment. No. 265, by Mr. Burchett, is a most pleasing portrait study by one who is first an artist, and secondly a photographer. Mr. Cameron's picture of "Henry Irving as Beckett" is familiar from previous acquaintance; but it is a capital picture for all that. We must also give a word of praise for Mr. Bridson's "Satterhow Farm" (No. 278). This is a well-considered composition, with an overhead light which gives sparkle to foliage and rustic buildings.

And so good-bye to the Salon of 1893, which, take it all in all, is a remarkable exhibition, and one which, we think, marks an epoch in the progress of photographic picture-making.

PORTRAITURE.*

BY SHAPOOR N. BHEDWAR.

"We behold all about us with the eyes of those penetrating observers whose works we contemplate; and our minds, accustomed to think the thoughts of the noblest and brightest intellects, are prepared for the discovery and selection of all that is great and noble in nature."—Sir Joshua Reynolds.

Studio.

PREVIOUS to my speaking about the subject of portraiture in general, I would like to give expression to my own convictions as to what a perfect studio with its surroundings should be. It is now the opinion of many that an ordinary room, with a high side-light streaming in from the north, is the studio of the future. The advantages of such a construction are many and evident. The studio being an ordinary room, it could be made infinitely more comfortable and pleasing in design, and should be so furnished as to help to remove from the minds of the sitters any impression of restraint or stiffness. The artist must never have in his studio any furniture but such as is simple and genuine. It should be of the best make, and elegant in design, without sacrificing in the least the appearance of comfort to mere outward show and form. The divisions of the glass should be made as few as possible. The blinds also should be few in number, of a suitable material, and simple in construction.

Background.

The background should also hold a very important place in the studio of a photographic artist. It plays a very prominent part in the composition and the harmonious arrangement of light and shade in a picture. A plain background, without any variation of correctly-distributed light and shade, makes the picture before it quite flat. The breadth, the effect, and the richness of it are lost. The light and shade of a background should be well graduated; otherwise it becomes inappropriate and unnatural. The proper arrangement of it should not be lost sight of, and it should be so placed as to act as a sort of "*repoussoir*," or setting off, to the whole figure. The whole should be made to appear in relief against it, and should be so supported as to give to the whole combination a pleasing and picturesque effect. All accessories which savour in the least of artificiality in a photograph should be discarded. Many a time even good accessories are so misplaced that pictures which are perfect in every other respect are ruined for want of correct judgment in the artistic combinations of such accessories. In the selection of his accessories, the artist must bear in mind the dictum of Ruskin that "truth is the first consideration in art; harmony and beauty will follow." Unnatural backgrounds in the hands of a photographer, and more so in those of one ignorant of the very rudiments of art and composition of a simple picture, would lead him to commit unpardonable blunders, and would make his sitters look like fish out of water. The photographer has not the same advantages as a painter in the choice of his backgrounds. The latter is free to select and paint one that is most truthful in effect, and in keeping with the subject he paints. His brush helps him to adapt and vary it according to the promptings of his artistic sense at the time. But, in the case of the former, he is obliged to use a few backgrounds for all conditions and classes of men, from a peer down to a peasant. They should, therefore, be so devised as to present no special characteristics, but to suit and adjust themselves to any kind of subject that may be placed before them. Supposing, then, the background to represent a wall, or portion of a wall, with well-graduated shadows, and so contrived as to seem, with a little judicious change of the surroundings and an appropriate addition of furniture and draperies, to indicate an interior of a study, a drawing-room, or a palace; or, if called upon to depict the interior of a cottage, the same background could be made equally to suit by removing therefrom such articles and accessories as would jar with the harmony and truth of the picture to be taken. Thus a carefully thought-out background proves a valuable helpmeet in the hands of an ingenious artist, as he knows the correct uses it could be put to in case of the various classes of sitters that may come to him. Then much would depend upon the arrangement of the whole picture. The arrangement should be such as to give relief to the figure, and add to the effect of breadth presented by the whole picture.

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* Read before the World's Photographers' Congress, at Chicago, Ill., August, 1893.

There is a widely prevalent objection to dark backgrounds of one uniform tint unrelieved by any kind of graduated light and shade. No doubt such a background greatly intensifies the light; it also helps to enhance the effect of contrast by throwing out into bold relief especially large busts draped with a thin white gauzy fabric. This effect of relief appears more pleasing and charming as the white drapery is vignetted off in the dark. Mr. Simpson has remarked "that contrast, when skilfully managed, is a legitimate source of brilliancy, and the purity and the intensity of a light can any time be forced by placing it in juxtaposition with deep shadows or dark masses."

Costume.

There is very little noteworthy to be said in regard to the dress in which the sitters generally come to be photographed. This remark applies more to male than to female sitters. But, for all that, this element must not be left out of sight, and it is of the utmost consequence that gentlemen should present themselves in their every-day costume—one in which they are more familiar to their friends and relations. For want of attention to this detail, it frequently happens that sitters are led to conclude that there is something in their portraits which is either not striking and life-like, or lacking in truthfulness to the original. This absence of truth is often caused by the neglect of sitters to present themselves in their every-day dress, or one in which they are habitually seen. Greater variety in dress is, however, observed in the case of lady sitters; hence, there is very little to be said on this point, except that the dress should be simple and flexible. The Indian costume, especially of the women of India, is well known for its flexibility, and it can with the greatest ease be moulded into most graceful folds, and what may be called its transparency allows effect to be secured by play of limb. Hence the fitness of the dress for art lies in the ease with which it may be modified, manipulated, and rendered expressive. It requires the nicest judgment to so dispose the drapery that the folds shall have an easy communication, and gracefully follow one another with such natural negligence as to look like the effect of chance, and, at the same time, show the figure under it to the utmost advantage.

Composition.

The first and most important thing an artist should be acquainted with is the construction of a picture. By a harmonious arrangement of the details of lines and light and shade, or, in other words, what is called composition, the artist is enabled to express his idea intelligibly. Hence many have likened the pictorial art to language, to "the speech of one man intended to be read by another." His mind becomes a sort of filter, through which his idea and imagination work, and help him to put forth his very inmost soul before others in a clearer light.

Truth to Nature.

The mind of an artist derives its food from Nature, and the more it is in conformity with the lessons she inculcates to a keen observer and student, the more will it be truthful. It thus becomes the aim of the artist to represent such as may not be irritating to the eye. A real work of art is capable of giving us the utmost pleasure in proportion to the amount of truth which it is capable of expressing. The sense of agreeableness and pleasure produced by a picture is in a great measure dependent on the skill and knowledge with which that truth is made evident in the artist's work. Photography is thus made to express the exact truth which it is capable of rendering by a perfect blending of light and shade in keeping with the truthful effect of the whole. Thus a clever photographer feels it imperative on him to avoid that which is base and ugly, and attempts to elevate his subject by rejecting all the awkward forms and the jarring notes in his picture. The highest aim of art, therefore, is "to render Nature with the greatest truth, but in its most pleasing aspect." It must not be left out of sight that Nature is not equally beautiful in all aspects. In consequence, it becomes the duty of an artist to represent it in the most beautiful manner possible, and the nearer he approaches what Mrs. Browning calls "the truest truth, the fairest beauty," the closer he is to Nature. Hence an eminent critic has defined truth in art to be "the faithful statement either to the mind or the senses of any fact in Nature," or, as Carlyle epigrammatically expressed it, as "the disimprisoned soul of fact."

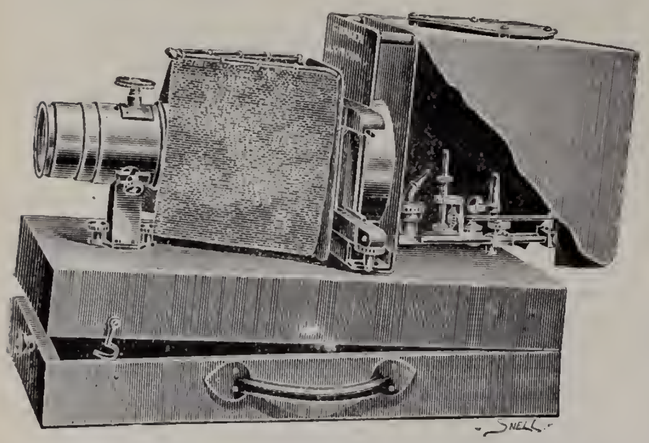
(*To be continued.*)

PATENT OFFICE

APPARATUS.

PORTABLE PROJECTION LANTERN.

UNDER this title have Messrs. Baker, of 244, High Holborn, introduced a lantern of most convenient form, the design of which is due to Commander C. E. Gladstone, R.N., the Hon. Sec. of the Lantern Society, London. In this instrument everything of an ornamental and heavy character is dispensed with, including the mahogany box, brass front, and chimney, which have formed the chief visible features of a magic lantern since its earliest conception.



The front, as will be seen by our illustration, consists of two metal plates about one inch apart, which may be made of aluminium or brass, serving as a support for a 4½-inch crown doublet condenser by Mr. E. M. Nelson. The carrier is affixed to the front of these two plates by means of thumb screws which afford ready adjustment. The projecting lens is mounted in a plain tube, which fits into another provided with focussing screw, and the whole is fixed on the top of the lantern-box by quickly-arranged attachments. Cloth curtains keep any light rays from escaping between objective and condenser, and cloth is also used for the same purpose at the back of the condenser in lieu of the ordinary lantern body, a thin metal plate being hung inside from above to protect it from the heat of the jet. The entire arrangement packs into a case measuring 19 inches × 9½ × 5. The design is most ingenious and the workmanship first class.

MR. T. H. POWELL, of Denmark Hill, has sent us a sample packet of his productions, which can be truly described as a *multum in parvo*. The only objection that can be raised to such convenient preparations is that they make photography too easy, and encourage the lazy to depend too much on others for work which they might be expected to perform themselves. But as the mass of mankind are lazily inclined, we may conjecture that "Powell's Compressed Toning Baths" (gold or platinum) will meet with a ready sale. These baths are represented by glass tubes full of a compound which merely requires dissolving in water to be ready for use. Mr. Powell also prepares compressed developer for gelatino-chloride papers, and compressed pyro and hydroquinone for negative use. Another valuable preparation which we think will be welcomed by many workers is an anti-halation backing for plates, consisting of caramel and burnt sienna. Many photographs are spoilt by halation because the worker has not at hand the materials wherewith to back his plates. Here it is ready for use, contained in a neat tin case.

MESSRS. PERKEN, SON, & RAYMENT have afforded us an opportunity of trying their "Optimus" lantern objective, which takes the form of a portrait lens of two-inch aperture and six-inch equivalent focus. The image given by this lens is brilliant and has a wonderfully flat field, and, as the chemical and visual foci coincide, the instrument can be used for portraiture as well as for lantern work. For the latter full aperture is indicated, but for the former a case of stops is provided.

WE are reminded of the near approach of Christmas by the receipt, from Messrs. Marion, of a very beautiful collection of ornamental cards, most of which bear good wishes for the festive season coupled with hopeful anticipations for the New Year. These cards are all designed for the insertion or the mounting of photographic portraits or landscape scraps, and one can hardly imagine a more effective frame for a picture. The cards are in many tints, are lavishly embossed with gold mountings, while some of them open in the most cunning manner to exhibit a highly-decorative interior in which a photograph is destined to rest. A very beautiful form of clasp in gold is formed upon some of these cards by interlocking the embossed letters of such a word as "Souvenir." We understand that these elegant productions are all designed in England. Some years ago, Messrs. Marion tell us, it was necessary to go abroad for such work, but the various art schools have had their effect, and now English artists can produce the best work.

MESSRS. PERCY LUND & CO. have also issued a number of tastefully-designed Christmas cards, and, while they do not attain to the high level touched by those of Messrs. Marion, are chaste in character and very attractive. These, too, are designed for the addition of photographs. We may, therefore, look forward in the coming season to a new fashion in photographic cards, and one which will be welcomed as a boon by photographers in general. We think that the public will also be glad to see something new in this direction.

ANOTHER novelty is found in the Interchangeable Photo-Scrap Album brought out by Messrs. Marcus Ward & Co., Limited. This is an elegant album with embossed and tinted frames for the insertion of untrimmed and unmounted photographs. All good photographers know that an albumen print has a much better chance of life if not mounted, and that with ordinary precautions such a print will keep good

for many years. In this new album such prints can be stored and changed whenever desired, and this being the case, it will serve as a convenient book of reference for current work, or as a welcome addition to the attractions of a drawing-room.

CORRESPONDENCE.

NEWCASTLE-ON-TYNE AND NORTHERN COUNTIES PHOTOGRAPHIC ASSOCIATION.

Sir,—Will you kindly permit us to notify through your columns that we purpose holding an International Photographic Exhibition in April, 1894? We will offer medals in the following open classes:—Landscapes, Genre, Portraiture, Architecture, Instantaneous Work, Enlargements, Hand-camera Work, Lantern Slides, and Stereoscopic Slides; and in a Champion Division we will offer medals in the following classes:—Landscape, Portraiture, and Genre. Our prospectus will be out in a few weeks, and I shall be glad to forward one to any intending exhibitor.

I may say that it is our intention to adhere to the regulations of the Conference of Judges in their entirety.

Jas. Brown, Hon. Sec.

31, Market Street, Newcastle-on-Tyne.

HOW TO OBTAIN A MEDAL.

Sir.—As some of your readers may be wishing for an award, I send the following hints:—Take a landscape (any flat subject will do), run a streak of light through the horizon (this can be easily done in the printing), and label it "Sunrise" or "Sunset." Another plan is to choose a figure subject—of, say, a young girl—very much over-expose the negative, and get a print from it with very weak lights and shades. Or, again, the model may be placed in a fog—the coming November will be a suitable time. Call it "Waiting." Of course, she would be waiting for the fog to clear, so the title would be appropriate. Or, if none of these suggestions please you, take a portrait of a distinguished foreigner; plenty of models may be obtained at the East End which will serve your purpose. Take your negative, and print it in such a manner that you can vary the tone, so that for each exhibition you can give it a different colour. Now, if any of these suggestions are carried out and are not altogether satisfactory, the judges will say the intention is good, and you are sure to get an award.—Yours faithfully,

A Member of the P.S.G.B.

THE SALON EXHIBITION.

Sir.—I note the letter signed "M. or N." in your paper of the 13th ult., and certainly agree with him in the main. Now whether the Salon is better than the Pall Mall Exhibition, or not, it is not for me to say, but it is certainly a very good show: but, like all other exhibitions, we find there a number of poor pictures. I cannot quite make out the cause of this, for I have seen a number of the rejected ones which certainly were far better than many hung on the walls; but, of course, no jury could satisfy everyone, and, taking all in all, I think the Committee of the Salon have given the public a good show, and one that ought to be continued. But a few alterations might be suggested. Whether a picture out of focus is art or not I need not express an opinion, for everyone has a right to his own ideas on such a subject: but the fault I find—and here, I fancy, many people will agree with me—is in making the Salon a two or three man show, as is distinctly proved by "M. or N." I have for a long time wished to see an exhibition held on the lines of the Salon, and hope to see it continued, as it is certainly a step in the right direction, but if one sees that the Committee hang each other's work, *good or bad*, to the exclusion of outsiders, I cannot see how it can survive another season. Those who are asked to contribute to the show get, perhaps, one picture out of several hung (and perhaps the worst one), and they see, at the same time, that the Committee each get a large number placed, some even fifteen. Now this I object to as likely to cause the public, in future exhibitions that may be held at the Dudley Gallery, to hold aloof from sending in, and I only hope that this grumble of mine will cause the authorities to think it over, as it would be a pity if the Salon should fall through. That there is room enough for it and the Pall Mall is evident, and we all know that "opposition is good for trade." Although one may not be able to say the Salon is all that it should be, it is certainly a very good exhibition, and well worth going to see.

A. R. Dresser.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

19,518. James William Cadett and Walter Neall, 33, Southampton Buildings, Chancery Lane, London. "Improved Means for Drying Photographic Films when on Celluloid, Paper, or other Flexible Substance or Material."—*October 17th*, 1893.

19,566. Matthew Linden Macauley, 87, St. Vincent Street, Glasgow. "Improvements in Stands for Cameras or other Articles"—*October 18th*, 1893.

19,781. Herbert Pearce, Norfolk House, Norfolk Street, London, "Improvements in and connected with Photographic Printing Surfaces."—*October 20th*, 1893.

19,810. Alfred Allen Barratt and Albert John Eves-Hill, 57, Chancery Lane, London, "A New or Improved Process for Separating Photographic Gelatine Films from Celluloid Supports or Bases."—*October 20th*, 1893.

19,835. John Frederick Hammond, 4, St. Ann's Square, Manchester, "Improved Apparatus for facilitating the Development of Photographic Negatives by Daylight."—*October 21st*, 1893.

19,836. Henry Harrington Leigh, 22, Southampton Buildings, Chancery Lane, London, "Improvements in Photographic Cameras." (Nicolai Hausen, France.)—*October 21st*, 1893.

19,837. James Wilkinson and Aaron Wilkinson, 53, Arcade Chambers, St. Mary's Gate, Manchester, "Improvements in Transparency Printing-out Frames for Opals, Lantern Slides, and other Inflexible Substances."—*October 21st*, 1893.

19,845. James Dillon, 36, Dawson Street, Dublin, "Improved Means of Indicating the Depth of Water in Rivers, Harbours, Seas, and the like, and photographing said depths to scale or otherwise."—*October 21st*, 1893.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

October 26th.—Mr. A. Haddon in the Chair.

Mr. R. Beckett showed a print on Ilford printing-out paper, which had been exposed for a short time under a negative, until an image was just visible, and then developed by the formula published by the Paget Prize Company. The print was better than he could have obtained by printing-out, as the details in the shadows were not so much buried. The colour of the print after developing and before toning was just the same as that of the paper printed in the usual way.

Mr. E. J. Wall had tried both Ilford and Paget papers developed in this way, and in his hands the method was more successful than printing-out. There were two points very necessary to be observed. Great care must be taken not to develop too much, or the print would be blocked out. The print practically developed up to intensity in the toning. He thought that what was called toning ought in this case to be called intensification. By toning with a brush, parts of the image could be kept back.

Mr. W. E. Debenham inquired whether the white margins of vignettes were retained clean.

Mr. Wall said they were. Great care must be taken not to expose the print to the light during or before development, and to thoroughly wash out the developer before toning.

Mr. E. W. Parfitt inquired whether printing to any particular depth was necessary.

Mr. Beckett replied that it was not. The print might have any exposure, from enough to be just visible up almost to completion by light alone, and the developer used to finish to the required depth.

The Hon. Secretary then read a paper by Mr. T. Bolas on "The Aluminium Flash Light," and illustrated it by producing the light with one of England's lamps.

Mr. Hudson said that the aluminium powder burned well in his gas lamp.

Mr. Wall said that it had recently been shown that aluminium was decidedly inferior to magnesium in actinic power, giving, in fact, only about one-third the amount of light.

Mr. R. Child Bayley said that aluminium leaf burned in oxygen would be much better than magnesium. With two leaves about two inches square he had obtained a negative quite decently exposed.

Mr. Wall inquired whether Mr. Bayley could tell them the difference between aluminium burned in oxygen and in air.

Mr. Bayley could not.

A Member said it had been observed that the fumes from aluminium were much less objectionable than those from magnesium.

The Chairman said it was a mistake to suppose that, as had been said, aluminium did not tarnish. Aluminium became rapidly covered with a film of oxide, which was, however, so transparent as not to be easily noticed.

Mr. J. T. Truscott was elected a member.

The meeting was then resolved into a special general meeting for the consideration of a proposal to add such words to Rule 6 as should define the eligibility of ladies as members, it having been held that, as worded, the matter was open to question.

It was proposed by Mr. Debenham, seconded by Mr. Steinmitz, and supported by Mr. P. Everitt, to add the words, "Ladies are eligible to all the privileges of membership." An amendment, proposed by Mr. T. Bedding, seconded by Mr. E. H. Cooke, and supported by Messrs. W. D. Welford, J. H. Sinclair, and others, that "Gentlemen only are eligible," was adopted, with a subsequent amendment to insert the word "ordinary" before membership, so that ladies would still be eligible as honorary members.

West London Photographic Society.

Ordinary Meeting, October 24th.

The President (Mr. J. A. Hodges) delivered his inaugural address. For a full review of the year's progress, he referred members to the address of Capt. Abney before the Congress of Photographers at the Society of Arts. He would mention as of special interest the recent improvements in lenses—notably the new anastigmatic lens of Goerz, which was a remarkable production, giving marvellous defining power, with large aperture compared with the older types of lenses. His own experience of some recent new lenses of the anastigmatic type was that their powers were overrated, and he considered that they show their superiority only when the objects are approximately in one plane—a condition of things not usually met with out of doors. Mr. Dallmeyer's photo-telescopic lens the so-called artist-photographer would find a useful instrument, particularly in mountainous districts. Referring to the Photographic Salon at the Dudley Gallery, at which was to be seen the work of several members of the West London Photographic Society, the President said that it was apparent that to the teachings of Dr. P. H. Emerson, once a member of this Society, was to be ascribed the present position of photography as a graphic art. "Naturalistic" photography fell like a thunderbolt at the feet of photographers. Coming to the Society's own affairs, the President referred to its success at the National Photographic Exhibition in obtaining the Challenge Cup from a much stronger society. The Society's own exhibition had succeeded in a gratifying manner, and he looked forward to still better things. He hoped *every* member would send at least one print. The present fine weather was favourable to those who had neglected the opportunities of the late summer. The postponement of the date of the exhibition for a few weeks later would also assist them. He would suggest that the proposal of another member, that the technical social meetings be utilised for demonstrations for the benefit of the younger members of the Society, be put into practice, and promised to co-operate by himself conducting one such demonstration. Referring to the survey work being undertaken by the Society, he said that the prints already contributed more than justified the starting of the scheme. Already some of the buildings photographed had disappeared. The work, faithfully carried out, would redound to the credit of the Society, and give it a status it could in no other way attain.

Hackney Photographic Society.

October 24th.—Mr. E. Puttock in the Chair.

Several new nominations for membership were announced. Members' work was shown by Messrs. Cross, Guest, and Norris. Some excellent snap-shots of football players was shown by Mr. Gosling, and showed very careful work. Mr. Guest showed two bromide prints (enlargements), one at twenty minutes' exposure with gas-light, and the other with half hour. The former was developed with amidol, the latter with hydroquinone. The one developed with amidol was stained, and the reason asked. Several members stated it was not due to the developer, but contamination with dirty dishes or hypo. Mr. **Dean** showed an overprinted view on P.O P., fixed direct with hypo without toning, and asked the cause of black spots upon the face of it. Mr. **Beckett** said that the print must have been imperfectly washed, and the citric acid left in the paper in combination with hypo produced sulphur toning.

Leytonstone Camera Club.

On the 18th ult., the **President** (Dr. W. Pickett Turner) in the Chair, the first demonstration in the New Hall and Studio took place.

M. E. A. **Leblanc** demonstrated the uses of Dr. Andresen's rodinal and glycin, also metol, amidol, eikonogen, fixing, and tone-fixing cartridges. First, the different qualities of the developers were explained; second, plates and films were developed with rodinal and metol cartridge; third, bromide paper was developed with amidol cartridge; fourth, lantern slides were developed with eikonogen cartridge; and lastly, Eastman Solio, Ilford P.O.P., and Paget P.O.P. chloride papers were toned with the tone-fixing cartridge. A large number of negatives and prints, which were passed round, amply testified the capabilities of Dr. Andresen's specialities, one of the most remarkable and useful being the fixing salt; a ¼ lb. solid bar dropped into 10 ozs. of water being dissolved in about 30 seconds.

M. Leblanc dealt with his subject in a very able manner, and gave most lucid explanations to the various questions put by the large number of members present.

South London Photographic Society.

October 16th.—Ordinary Meeting at Hanover Hall, Hanover Park, Peckham.—The **President** (Mr. F. W. Edwards) in the Chair.

After the close of the usual formal business, the evening was devoted to the exhibition of slides in the Society's lantern, to enable members to select and make up the sets which they intend to send in for competition at the Exhibition to be held early in next month. Mr. A. H. Wall and Mr. E. J. Wall were elected honorary members of the Society.

Kingston-on-Thames Photographic Society.

At a preliminary meeting, held October 21st, Rev. G. T. **Swinnerton** in the chair, the following resolutions were proposed, seconded, and carried unanimously:—

I. That a Photographic Society be formed for Kingston and the neighbourhood.

II. That the Society shall admit to its membership all persons interested in photography, whether ladies or gentlemen.

III. That a sub-committee be formed to draw up a prospectus. Rev. A. Dunne (Kingston), Mrs. W. Price (Hampton Wick), and Mr. W. Robertson (Surbiton), to form the Sub-Committee.

IV. That Dr. Finny (Kingston Hill) shall be appointed Hon. Sec. *pro tem.*

V. That all gentlemen present shall constitute a Preliminary Committee to form the Society.

VI. That the Preliminary Committee shall meet at Kenlis, Queen's Road, Kingston Hill, on Saturday, October 28th, for the purpose of supervising the prospectus drawn up by the Sub-Committee.

The following gentlemen were among those present, and constituted the Preliminary Committee:—Rev. G. Swinnerton, Rev. A. E. Dunne, Messrs. A. Brown, F.R.G.S., F. Drewett, F. Le Marchand, W. Price, W. Robertson, F. Wright, E. Wilson Councillor Youldon, and Dr. Finny.

Glasgow and West of Scotland Amateur Photographic Association.

The ordinary monthly meeting was held in the Association's Rooms on 16th ult., Mr. Wm. J. B. **Halley** (President) in the Chair.

Twenty-nine new members were elected.

After the formal business was disposed of, the **President** addressed the meeting, referring briefly to the satisfactory position of the Association, and the prospects of the session now opening.

Mr. **Stewart Smith**, Vice-President, read a paper on "Enlarging," and exhibited his apparatus suitable for daylight or limelight. At the conclusion of his paper he made some exposures by limelight, and showed how to print in a sky from a separate negative.

Arrangements for the annual exhibition of members' work were discussed, the opening day being fixed for 22nd December. In connection with this exhibition medals will be offered for sets of lantern slides with suitable lecturettes, which must be delivered before the Association during the session.

The meeting terminated with the usual show of members lantern slides.

Newcastle-on-Tyne and Northern Counties Photographic Association.

The annual meeting was held on the 24th ult., Mr. J. P. **Gibson**, President, in the Chair.

The Secretary's report stated that the Association was in a flourishing condition, the membership being 155, and the attendance at both outdoor and indoor meetings having greatly exceeded any previous year. The Treasurer's report showed a small balance in hand.

Meetings:—

November 7th.—Monthly meeting. Discussion on Printing Processes, opened by Mr. J. P. **Gibson**.

November 21st.—Exhibition of the "National" Prize Slides.

Birmingham Photographic Society.

Ordinary Meeting, October 17th.—Mr. J. J. **Button** in the Chair.

About twenty members present. A number of fine photographs lent by the President of the Society were on view. They consisted of enlargements made from negatives taken by him on his recent tour in the West Indies and Brazil, which were very much admired, and of a very fine series of Irish views, which were the work of a professional. These latter showed especially wonderful skill in platinotype printing.

Ordinary Meeting, October 24th.—Mr. G. F. **Lyndon** in the Chair.

About twenty-five members present. Mr. **Chubb** read a paper, entitled "The Naissance of Art in Photography," which was written by Mr. Andrew Pringle, and appeared in the *Studio*. He also read a number of letters by eminent artists of the day, in reply to a question addressed to them by the editor of the *Studio*, as to whether they considered photography had been, on the whole, a help to art or not.

The opinions expressed were very various, and they may be summed up by saying that photography is a help to the artist or not, just according as it is properly used or not. A profitable discussion followed, in which several members took part.

Liverpool Amateur Photographic Association.

The ordinary monthly meeting was held in the Club Rooms, Eberle Street, on Thursday, October 26th, the President (Mr. A. J. Cleaver) in the chair.

Messrs. F. A. Sheirwater and Benjamin Cookson were appointed auditors for the year.

Special mention was made by the President of the success achieved by the Association in the recent National Lantern Slide Competition in London, and a special vote of thanks was accorded to the six competitors who represented the Association—Messrs. Fred Anyon (Silver Medal), Joseph Earp (Bronze Medal), G. A. Carruthers, Anthony Dod, Harry Holt, and T. B. Sutton.

Mr. Adolph W. Beer then gave a most interesting lecture, entitled "By River and Hill"—some bye-ways among the Ardennes and in Rhenish Prussia—illustrated by 130 lantern slides, made from negatives taken by the lecturer and Mr. J. H. Day. The slides were of high quality and artistic merit, and were very graphically described by the lecturer.

Judging from the frequent, hearty outbursts of applause and laughter of the large audience, it was evident that a most enjoyable evening was spent.

Ashton-under-Lyne Photographic Society.

Winter Session, 1893-4.

Thursday, November 2nd.—Mr. S. Sharp will have a number of Christmas mounts on view at the Rooms.

Tuesday, November 7th.—Lantern Exhibition of the "Hand Camera and Lantern Review," 1893, Prize Slides, in which the second prize was won by this Society. The Exhibition will be in the Co-operative Hall at 7.30 p.m., and admission will be by ticket to be had from the Secretary or at the Rooms. Each member will be entitled to six tickets. Delineator, C. E. Redfern, Esq., J.P. Chairman, J. W. Kenworthy, Esq., J.P.

Wednesday and Thursday, November 15th and 16th.—An exhibition of cameras at the Rooms. They will include Mr. S. Woolley's Own-made Hand Camera, the British, the Frena, and several others.

Wednesday, November 22nd.—A demonstration by Mr. Wm. Moss, entitled "Micro-Photography." Chairman, Dr. Hamilton.

Wednesday and Thursday, November 29th and 30th.—Exhibition of negatives and prints by several members.

The Librarian will be glad to receive gifts of lantern slides, to be loaned out to members of the Society by the Committee.

Members going in for the Lantern Slide Competition will please not forget the date—viz., December 11th, 1893.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

F. T. J. (Birmingham).—The most practical book which has yet been published on the subject is "Photo-Engraving," by C. Schraubstadter, jun. (St. Louis), 1892. You will find there all that you want, so far as the etching of the metal is concerned. About the rest of the process to which you refer we know nothing, and infer that you are experimenting in a new direction.

C. (St. Petersburg).—Very many thanks to you for your kind letter. The translator has been very much at fault, and has been the cause of much annoyance. When a matter is translated first into one language, and the translation done into another, the ultimate product is likely to suffer considerably.

J. K.—Our representative at Birmingham will receive instructions to call upon you. The matter can be best dealt with by personal interview.

Cadmus.—Send your residues to a refiner. The treating of small quantities is not at all worth the trouble entailed.

Gemma.—We shall be glad to receive your kind contribution to the Year Book with all possible speed. Part of the work is already at press, and the remainder cannot much longer be delayed.

D. P.—A solution containing hydroquinone and eikonogen will not keep colourless if exposed to air unless the quantity of sulphite is much greater than you are employing. The best way to preserve such a mixture is to use a bottle with wide mouth, fitted with a cork pierced for the reception of two glass tubes. One tube should penetrate to the bottom of the bottle, and be bent downwards at its exit from the cork. The other tube need only just go through the cork. The bottle is nearly filled with the mixture to be preserved, and a little castor oil. or paraffin, poured above it, to protect it from the air. Upon blowing down the short tube, the liquid will be delivered from the other one as required. We have kept various perishable liquids under such conditions for long periods.

M. J. (Cheltenham).—If a zinc plate, upon etching with acid, exhibits holes or black spots, the metal is impure and quite unfit for photographic purposes. The impurities in common zinc are many, and nothing but a guaranteed quality should be employed for the work.

Gasman.—The spluttering noise in your cylinder is most likely due to a liquid deposit from the house gas with which it is charged. The remedy is to support it in the corner of a room nozzle downwards for an hour or more. Then take it into the open air, still upside down, and turn the valve on sharply for a few seconds. The sudden outrush of gas will carry all impurities with it.

O. S.—There is nothing better as a waterproofer of wood than solid paraffin. Make the wood quite hot and apply the paraffin wax with a hot iron.

Eros.—Thank you. The matter is under consideration.

* * *

Messrs. Sichel's New Show Rooms.—A valuable jewel is always worthy of, and generally much improved by, a good setting, and it is also true that a good picture is enhanced in effect by being placed in a suitable frame. Those who have photographs which require framing should betake themselves to the new show-rooms of Messrs. Sichel & Co., at 47, Oxford Street, where they can see all the latest and most elegant mouldings in every conceivable material, from gilt to plush. One pattern with key corners is remarkably effective, and is made in various sizes, and, of course, to any particular size if ordered. Messrs. Sichel have also a stock of cameras, which exhibit valuable features, besides back-grounds and other goods, useful to photographers. The show-rooms at Oxford Street are connected by telephone with the extensive works of the same firm in Bunhill Row. It is, therefore, possible to give an order at the West End of London which is executed in the East, while the finished goods are returned westward within a few hours.

The Photographic News

A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

VOL. XXXVII.—No. 1836. NOVEMBER 10, 1893.

NOTES.

THE Central Photographic Club is now started on what we trust will be a successful career. On Friday last there was a "hand-camera night," and other attractions are promised. Among these should be noted the first "one-man show," which will take place some time this month, when the works of Mr. Fall will be chosen for exhibition. This will be followed by similar exhibitions of the works of Mr. Richard Keene, of Derby, and of Mr. F. W. Edwards. The Club premises, at Coleman's Hotel, Henrietta Street, are now open all day for the use of members.

THE report of the City and Guilds of London Institute, on the work of the department for the session 1892-3, has just reached us, and a highly satisfactory document it is. The subjects taught cover every branch of technical knowledge, from salt manufacture to dressmaking. The entries in "Photography" are numerous, and it is interesting to note that a large proportion of the students have passed the examination, which is by no means an elementary one.

THE Polytechnic (Regent Street) Photographic School is now entering upon its twelfth session, and the programme in connection with it is of a most exhaustive character. The teachers include Mr. Howard Farmer, Mr. Valentine Blanchard, and Mr. Horsley Hinton, and the syllabus of lectures embraces every branch of photography, from negative making to photogravure. Beginners, as well as more advanced photographers, will find it to their advantage to obtain a copy of the prospectus from which we quote.

ON Tuesday last the new session was inaugurated, when Mr. Howard Farmer's introductory lecture dealt with the question whether incorrect exposure could be dealt with in the subsequent operation of developing.

PHOTOGRAPHY has, unfortunately, like other good things, been often put to ignoble uses, but such a case as that recently reported from Vienna is happily unique. A young man, living quietly with his mother and sister, becomes acquainted with a fascinating girl who subsequently turns out to be an adventuress with very shady antecedents. The acquaintance is in consequence broken off, to the deep grief of the hero of the story. After trying in vain to gain her lost position, the rejected one hits upon an expedient which she trusts will soften the heart of her lover. She is photographed in bridal attire in a coffin, and sends him by another hand a copy of the picture. The lover thereupon frantically accuses himself of having murdered her, and is now a lunatic. The question, "Can photography lie?" is in this case answered affirmatively.

MESSRS. CADETT & NEALL'S bright little magazine, *Dry Plates*, contains as its headline for October a little piece of advice which should be writ large on the wall of every photographic studio. It runs thus: "Warm or cool your developer to 60° Fahr., as the temperature may necessitate." This is followed by a few more hints with regard to development, which are not new, but are for the most part ignored or forgotten. It is certainly very disinterested of platemakers to give hints which are eminently calculated to limit the number of spoilt negatives.

WE have received from Mr. Snowden Ward a report of the recent doings of the Benevolent Association, which is constantly affording relief to deserving and necessitous cases. We may remind our readers that the Lantern evening at Pall Mall to-night will be for the benefit of the Association.

The demonstrations of Mr. Anderton's lantern stereoscope at Pall Mall have aroused much interest. The instrument is really a wonderfully realistic one, and the ingenuity with which it is worked out is worthy of all praise. Such an invention as this, unfortunately does not usually bring the pecuniary reward to its inventor which contrivances of much lower merit command. If Mr. Anderton had produced a new staylace, or a railway station bun which would not get stale, with currants in it, or an electric belt, without currents in it, or some other little swindle of the kind, he might have been a millionaire. Nevertheless let us hope that his lantern stereoscope will continue to be appreciated, and that Mr. Anderton's agents, Messrs. Field & Co., of Suffolk Street, Birmingham, will receive many orders for it as its merits become more widely known.

Is the *Pall Mall Gazette* right in supposing that photographic knowledge and training among military men are confined to the Royal Engineers only? Photography is a very favourite pursuit among military officers as a rule, and we are inclined to believe with Mr. Snowden Ward, who has written a letter on the subject, that there are already sufficient photographers to supply every corps with one officer and two or three non-commissioned officers which the *Pall Mall Gazette* asks for. Whether, supposing this not to be the case, Mr. Ward's suggestion that a sufficient number of photographers ready made could be easily recruited is feasible is another matter.

Like bandsmen, these subsidiary photographers would have to be soldiers, and the discipline and rule might prove rather irksome to the majority of photographers who have a tendency to be erratic and uncertain in their habits. Still there are many operators out of situations, and some might be tempted to enlist, and put up with all the restrictions, if they knew their duties were to be purely photographic.

Judging by the photographs of the marriageable princes and princesses of Europe, published in an illustrated society paper, royalty has not a monopoly of beauty. This, of course, it cannot help, but, as another society paper points out, it is rather absurd to accompany the portraits with letterpress descriptions representing one princess as "charming," another as "most amiable," and a third as possessing "a perfectly fascinating smile," when the photographs do not bear out the eulogiums in the least. But people who are asked for their photographs for reproduction do not hesitate to give the most unflattering likenesses of themselves if they have no other. They have a notion that all will come right when the portraits appear in the paper. An instance of this occurred recently in connection with a trade paper, where a commercial notability sent a photograph of himself taken in his garden by a boy of ten, and was quite surprised when he was told it could not be made into a presentable picture.

In a note, last week, we deplored the circumstance that fashion-plate makers did not use photography, in order that the monstrous forms drawn by those who practice this peculiar branch of art should disappear. It has been since pointed out to us that the pictures illustrating the article on this month's fashions, which appears in *Cassell's Magazine* are Meisenbach blocks from direct photographs. We are glad to make a note of this innovation, which is certainly a step in the right direction.

We do not know that any English artist will envy Herr Tuxen, who has been entrusted with a commission to paint a picture of the Duke of York's wedding. The pictures already in existence of similar functions do not inspire one with the wish for additions to the list. The vanity, the caprice, and the jealousy of the persons represented must be enough to drive the artist mad. Photography, of course, assists him to some extent, and he has not to chase personages of high birth about in order to secure a sitting, as was necessary half a century ago. Still, even with photographs, the lot of the artist is not a happy one, as Mr. W. P. Frith experienced in his efforts to secure the portraits of those who assisted at the wedding of the Prince of Wales.

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Liverpool Amateur Photographic Association.—A practical demonstration was given in the Club-rooms, Eberle Street, on Thursday evening, November 2, by Mr. G. A. Carruthers and Mr. H. Holt, the subject being "Lantern-slide Making." Mr. Holt developed slides reduced from whole plates by daylight, explaining his method of working, and giving valuable hints as to the manipulation. Mr. Carruthers generally endorsed what Mr. Holt had said, but explained that daylight was not available for most amateurs. He then went on to demonstrate that equally good results could be obtained by the use of artificial light; this he proved by making a reduction in the camera and using magnesium ribbon, then developing the slide. Excellent results were put through the lantern, he giving general hints as to the colour most suitable, masks, &c. The lecture was followed with great interest by a large gathering of members, and the old proverb, "an ounce of practice is worth a ton of theory," was fully borne out.

RECENT IMPROVEMENTS IN PHOTOGRAPHIC LENSES.

BY W. K. BURTON, TOKIO, JAPAN.

(*Concluded from page* 695.)

TAKE again the case of 12 by 10. In this case suppose a single lens of sixteen inches focus. The tele-photo lens will give an image as large as a single lens of over seventy inches focus. It is not necessary, however, to enlarge on this subject, for examples of work of all the tele-photographic lenses that have been invented have been published, and must be familiar to every one. I enclose one example of my own work. The back focus of the lenses was the same in both cases, the small picture having been made with a rectilinear lens of twelve inches equivalent focus.

It is true that the figures given will not hold for actual extension of the camera, for the "internal extension" of the lens projects into the camera from three and one-half to six inches, according to the size of the lens, and if no such special arrangement is made, the camera must be extended from one to the other of these distances, to give the same back focus with the tele-photographic lens that there is with ordinary forms of lens. I have fitted my own lens on an external camera extension which just equals the internal extension of the lens itself, and this first mentioned extension carries the gear for making the spherical aberration adjustment. It will fit on any of several cameras of different sizes.

The tele-photographic lens is not rapid in the sense in which that term is applied to modern lenses of other forms, and it is difficult to see how a rapid tele-photographic lens could be constructed. With the extensions most likely to be used the lens, without stop, has an aperture corresponding to from $f/20$ to $f/30$, and it is generally necessary to stop down to at least half these apertures. Nevertheless, with suitable subjects, and everything else favourable, "instantaneous" work is not impossible with the tele-photographic lens.

The depth of focus of the tele-photographic lens is very slight, and as far as I can see this is an inevitable drawback of such lenses. As an example, if the No. 3 tele-photographic lens of Dallmeyer were used with an extension of camera of forty inches, and the full aperture of two and three-fourths inches, an object at half a mile distant and one at an indefinite distance would not be in sharp focus at the same time. In using a tele-photographic lens of any form it is necessary to insure absolute rigidity of the camera. A vibration not visible to the eye will altogether destroy the sharpness of the image.

It may be asked, "Why all this fuss about tele-photographic lenses, admittedly somewhat difficult to work, when we can so easily make small negatives and enlarge from them?" To this my answer is that, although there are many cases in which I should prefer this latter course, I have fully persuaded myself by experiment that results are to be had with the tele-photographic lens which in the matter of definition, detail, and "tone" are not to be approached in enlargements. Of course I have not failed to notice that, recently, a new tele photographic lens has been introduced by Mr. Albert B. Parvin, of Philadelphia, for which many advantages are claimed. From the descriptions I have read, however, I do not thoroughly follow the construction of the lens, and, in any case, it would be presumption on my part, writing from this corner of the world, to criticise a lens that I know only by description, in a paper to be read before an audience who, I conclude, will all be familiar with the lens. I can only congratulate Mr. Parvin on having produced something that is evidently new, and that I hope is a distinct improvement on anything we have had before.

I am sorry that, in a paper to be read before Americans, I am unable to mention any recent radical improvements in photographic lenses by Americans besides that of Mr. Parvin just mentioned. That there have been such improvements I do not doubt, but no American lens except Kodak lenses ever reach this country, and the descriptions of new lenses in American journals are generally vague, if not misleading. I remember, for example, reading in one, I forget which, an editorial describing the Dallmeyer tele-photographic lens, in which it was stated that the image on the ground glass was upright. To judge by an editorial note in another photographic periodical, hailing from New York, there was invented in America, some year or so ago, a lens that must be very novel—very novel. It has a "violet light attachment," the result of the use of which can only be spoken of as miraculous, to judge by the description given. The said description, however, was of such a nature that an attempt to make head or tail of it drove this present writer to the very verge of distraction.

Now, just one word, in conclusion, as to the particular further improvement that I should like to see introduced in landscape lenses—its objects, to give us the power of getting either sharp definition, or "softness, diffusion," or whatever anyone pleases to call it, with either small or large apertures. What I would like to see produced is a lens with a flat field, without astigmatism, defining through a moderate angle, having at least a moderate maximum aperture, with which it is capable of giving perfect definition, and having such an adjustment that such spherical aberration can be introduced that even with a small stop the image can be perceptibly softened, or that this same effect can be produced by some other means.

I described such a *desideratum* in an English photographic periodical some months ago, and Mr. Dallmeyer, writing to me about it, stated that the difficulties in designing such a lens were very great. If Mr. Dallmeyer describes them as great they must be great indeed; yet I still hope to see them overcome.—*Read at the Congress of Photographers held at Chicago in August*, 1893.

* * *

Mr. T. Sidney Cooper, the venerable artist, whose illness seemed at one time to promise little hope of his recovery, is now convalescent. He is the oldest of the Royal Academicians in point of years, though not in date of election.

PATENT OFFICE

A TOUR IN BELGIUM.

BY CECIL M. HEPWORTH.

II.—ANTWERP.

To Antwerp by train was our next move; and, sorry as we were to leave the beautiful city of Brussels, with all its wonders and delights, we were, nevertheless, eager to visit the ancient town on the Scheldt, whose chequered career of alternating prosperity and desolation, peace and bombardment, has been watched with such curiosity and anxiety by so many thousands, and of whose beauties we had heard so much.

We arrived at Antwerp at about five o'clock in the afternoon, and made our way, as was our wont, towards the most ancient and, therefore, probably the most picturesque and interesting portion of the town. Walking straight down the fine broad street opposite the station we soon came to the Place Verte, and stood for some minutes admiring the scene which there met our gaze. A square, open space, surrounding a large statue of Rubens, and planted here and there with trees, whose pleasant shade, and bright green colour, formed a welcome relief after the glare and heat of the open streets. The cool, leafy avenues here were lined on either side with gaily-decked flower stalls and baskets, behind which sat pleasant-faced women, prattling and cooing to the happy-looking children playing at their feet, all the time knitting diligently and occasionally prevailing on a passer-by to purchase a bouquet of their sweet-scented wares.

ANTWERP CATHEDRAL, FROM THE GRAND PLACE.

As a background to this busy scene a row of small pink, yellow, and white houses and shops in the usual Belgian style, and behind these again, rising in majestic grandeur, the lofty aisles and transepts of the cathedral, crowned with its exquisitely graceful and fairy-like spire. Thus was made up a picture which will live in the memory after many another less beautiful sight shall have been wiped out for ever.

Three hundred and ninety-nine feet high, they tell us, is this spire. We none of us quite believed it to be so nearly the height of London's St. Paul's, for it certainly did not look it. Anyhow, it was high enough for the carillon, which "works" every quarter of an hour, to be almost inaudible from the level of the streets. This, however, was perhaps rather an advantage. But we heard the bells well enough in the night, when the town was hushed and still, and we were nearer to them by the height of a couple of storeys. Then they rang out with almost startling vigour, but were musical withal, and seemed in keeping with the quiet surroundings.

Next morning we discussed the bells over our *café-au-lait*, and endeavoured to determine the tune which they played. There was so much difference of opinion, however, that we did not arrive at a very satisfactory conclusion, but we all agreed that there tinkled a suspicion of "Dear little Buttercup" and a phrase from the "Fusiliers," but beyond this we dare not go.

Once more out with our cameras. We directed our steps first towards the river, which bears on its broad bosom most of the commerce and wealth of Antwerp. Here are miles of wharf frontage, at which hundreds of steamers are loading and unloading, by hydraulic cranes and other modern appliances, which, no doubt, are doing their share towards restoring the commerce of Antwerp, a process which seems to be proceeding at an astonishing rate.

This city, which was once the most important seaport on the Continent, rivalling even Venice herself in the extent of its trade, was pillaged and besieged by the cruel Spanish soldiers in the sixteenth century, and the Inquisition with all its terrors was established in its castle, part of which now remains on the river front, and is turned into a museum of antiquities. The terrible massacres, and the fourteen months' siege which the city suffered, followed by the horrors of the Inquisition, drove thousands of merchants out of the country. Added to which, the Dutch, jealous of the city's great prosperity, employed every means in their power to complete the general ruin. During the long siege by the Duke of Parma in 1585, they actually used secret means to prevent succour reaching the beleaguered citizens, and built a number of forts at the mouth of the river, to prevent its navigation by friendly vessels. Sixty years after, by the Treaty of Münster, it was agreed "that no sea-going vessel should be permitted to ascend to Antwerp, but should unload at a Dutch port, whence merchandise should be forwarded to the city by means of river barges." This edict was the crowning wrong, and Antwerp was ruined.

A century and a half later the French came into possession of the town, demolished the Dutch forts, and thus restored to it direct communication with the world. Napoleon, who took a fancy to Antwerp on account of its situation, constructed several new quays and a harbour. But, independently of his help, the indefatigable citizens were intent on restoring their town, and the beginning of the year 1830 found them carrying on a brisk trade with the Dutch colonies. But, just as Antwerp was regaining its former position, the inhabitants were dragged into a disastrous revolution, and their trade betook itself elsewhere. The city was bombarded by the Dutch, and afterwards besieged by the French for twenty-four days, after which, says Baedeker, "the unfortunate town presented a scene of frightful desolation, and it was many years before it began to recover from these calamities." But, of late years, the commerce of the town has increased marvellously quickly, and its considerable trade is evidenced by the large number of steamers which enter and leave its docks daily.

A CORNER OF THE PLACE VERTE, ANTWERP.

We photographed the "Steen," as they call the old Inquisition buildings, and took several other views on the banks of the river. The modern wharves and appliances, so much in evidence all along the river for miles, are, of course, very fine, from a commercial point of view, but we camera-bearers cannot help sighing for the ancient river front, with its rough timber embankments. But now, nothing but stone and iron, steamboats and machinery, line the river on either side, and noisy steam whistles and rattling chains form the inevitable accompaniment. The cathedral is almost shut out from view by immense sheds and big stone embankments, which confine the river to one even breadth. It is to the river that all the dirt of Belgium gravitates. Hitherto, wherever we have been, streets, houses, people, from boulevard to slum, hotel to hovel, from the oldest man to the smallest child, all have been clean. Cleanliness, brightness, and cheerfulness seemed to reign supreme all over this model country. But here, by the river, it is as dirty as London. The boats look dull and almost uncared for; the men on them dirty and sulky-looking, in striking contrast to the bright, cheery faces we have been used to in other parts of the town; even the horses looked dejected, as though cast down by their unclean surroundings.

Turning to go back, we were confronted by a capital view of the cathedral up a broad street, with a busy crowd of people in the foreground, which made a good picture. Making our way along this street, we soon came to the Grande Place, with the Hotel de Ville, which we photographed, and in front of it a curious old well, surmounted by a statue of one Salvius Brabo, by Quintin Massys.

From the corner of the Grande Place I obtained a good view of the cathedral, which would have been better had I had a shorter focus lens, or a little more space; as it is, it shows the delicate tracery of this beautiful spire, perhaps the most beautiful in all Belgium, to great advantage. The door of the cathedral stood open and we entered. The interior is strikingly beautiful, and is, of course, decorated profusely in the usual Continental style. On either side of the lofty nave are three side aisles, all as tall as the centre one, and the perspective of the great labyrinth of pillars is extremely grand. The sunlight streaming through the many-coloured windows painted the paved floor with all the hues of the rainbow, and in the distance, but dimly visible through the mist of incense, could be seen the priests and acolytes surrounded by many candles, and ignoring the bright light of day pouring in on all sides.

We visited the grand new gallery of pictures, in which the pictures are mostly rather old, and comprise the finest works of Rubens and other masters of mediæval art, which we duly admired. The authorities take away all one's baggage as a condition of entering one of these places, and if you tell them that the mysterious-looking leather case which you take off your back contains a photographic camera, they won't understand you in the least, but they will regard it and guard it with the greatest respect nevertheless, and you may be quite sure that no harm will come to it while in their custody. At least, this was invariably our experience.

The picture galleries, museums, &c., are all open free to the public on Sundays, though on week days one has to pay a franc admission fee. The perambulation of picture galleries, the study of "old masters," which don't always appeal to our uncultured intellects, and the consideration of historical relics, and all of our own free will, carries with it a sense of duties religiously performed which is very soothing, and removes all qualms of conscience *re* Sabbath-breaking.

One evening we strayed into the Place Verte, which presented a scene of light and liveliness which I, for one, shall not soon forget. In addition to the bright electric arc lamps adorning the adjacent hotels, and hung from invisible cords over the centre of the streets —an excellent mode of illumination, by the way—there were hundreds of little electric fairy lamps in all colours, hung in festoons from the band stand. A quiet crowd of people, evidently thoroughly enjoying themselves, thronged the space around the band stand, or wandered off in twos and threes—generally twos— under the trees, or sat for a while on the seats near at hand.

In the band stand a large choir of some sixty men sang a number of part songs, and sang them well, while the people listened and testified their appreciation of the music by much applause at the conclusion of each song! How different it all was to anything we had seen before. Good music; a large concourse of people, all clean, all quiet; no policeman in sight to preserve order, and none needed. It was more like a garden party in private grounds than an evening for the people in the middle of a large city, and it filled us with wonder and admiration.

The hotels which faced the Place Verte were provided outside with tables and chairs under awnings, where the pleasure-seekers might regale themselves with delicious light beer, listen to the music, and enjoy the cool of the evening at the same time. We, in England, are used to consider "noise" and "beer" as inseparable, but here it was quite different. We seated ourselves at one of the tables, and wondered at the novelty of it all. We sipped our *bavière*, and listened to the singing and to the occasional tinkling of the bells in the cathedral tower above us; and, after a while, as we gradually took in the strange scene, we ceased to wonder at the evident happiness and contentment of the people. We half wished that we could always stay here, in this quiet old city, listening to the music, and feeling happy, almost without knowing why, because everyone else was so happy. Musing thus, the time passed swiftly away, and soon the lights went out one by one, the singers went their way, and the people quietly dispersed; yet still we lingered on, loth to leave, until the bells of the cathedral clock, striking the hour, reminded us that it was bedtime. So closed our last day in Antwerp.

PORTRAITURE.

BY SHAPOOR N. BHEDWAR.

(*Continued from page* 699.)

EXPRESSION AND VITALITY.

THE mood and condition of mind in which a sitter would present himself to an eminent painter would be caught with facility and delineated with truth. The expression would be quite commensurate with the skill and genius of the artist, with the insight he possesses into the reading of human mind and character. A painter's mind and fingers act in unison in accomplishing the desired effect. Of course, the best artists have failed sometimes, nay often, in bringing out the requisite expression and the inmost soul of the subject in their hands, though they have put forth their best efforts into them. The case becomes much more difficult of realisation in photography, where "an evanescent expression is to be suddenly caught hold of, noted, and preserved." When royal sitters and personages of high rank are concerned, it becomes the special duty of the artist to convey in his pictures the idea of princely rank and dignity. The distinct intention of the artist becomes at once apparent to the observer, and he feels as if he were in the presence of the royal person or a dignified personality. In such cases only the dignified portrait may be both consistent with nature and with fact. The case becomes altered when the representation of "noted men of high emprise" and men of action and of high calling in life is to be preserved. Here it would be difficult to see the true man unless he were seen in his own vocation in life. Such an idea was most successfully and admirably carried out by Mr. R. W. Robinson, of Red Hill, in the long series of photographs of Royal Academicians and Associates of England. Every artist in this collection is associated either with his own professional work or with some favourite pursuit, each in his own studio with his own surroundings. All the distinguished sitters in this series have the most varied attitudes and expressions, and no one is consciously posed to be photographed. Each thinks and feels as if absorbed in the work he has at heart—some with suspended animation intently talking, some interrupted in the abstraction of work by a casual interference—but all inspiring a sense of utter self-forgetfulness and absorption in their work. The vitality in this series of portraits is shown in the variety of character. All of them look intelligent and as full of life, action, and energy as such a distinguished body of men might be expected to be. This self-same variety of character displays also differences of temper and feeling. No less should it be noted that when persons from the lower ranks of society, such as artisans, farmers, mechanics, and labourers, are to be dealt with, it would be a vain attempt to pose them in graceful attitudes or in such positions as would be appropriate only to the more distinguished classes of society. The results then become always stiff and unnatural, and wanting in that consistency and truth by which alone they should be marked and perpetuated.

The interest that a work of art creates in us is entirely dependent on the measure of its expressiveness. It is naturally capable of being brought to perfection, and is attained with variable success. Its value, then, would rest on the degree of the human sympathies to which it appeals. In this, then, lies its power of representing to the spectator the skill and application, the refinement and the spirit with which the artist has worked upon it. Expression is thus defined to be "the significant intimation of characteristic power—of power that is of well-defined self-consistency relatively to a particular mental disposition, function, or purpose." It would be called the highest success in portraiture to be able "to convey a distinct impression of a self-consistent character, and this is most perfectly achieved by a combined inter-play of all resources resulting in a definite harmony of elements—vital, intellectual, and emotional." It would be exceedingly hard to state, and difficult to judge of, the character of an individual whom a photographer sees for the first time. Although the most expressive types and exponents of human character may be stated to be the head and features, still it would be a hard problem for the artist to present the portrait in the most favourable aspect of the face so as to be at once faithful, attractive, and true.

A well-proportioned face and beautiful features are generally taken by us to be, in a corresponding harmony, both intellectual and moral. But upon a closer examination it will be found that all objects presented to our view by Nature are characterised by their blemishes and defects, and the most beautiful forms have their weaknesses and imperfections. It is these accidental deficiencies, excrescences, and deformities of things from their general figures that constitute the principal characteristic of attraction pregnant with the individuality of the objects delineated. But it has not been given to every one to discern these defects. Only those who have been long accustomed to the contemplation and comparison of such sets of forms can acquire a just idea of the beautiful in Nature. Every artist, hence, is careful to select the best and finest according to the standard and dignity of his own conceptions. It may be that the ordinary intellect fails to recognise the excellence and the lofty aim of the artist. Yet for all that the greatest artists always make it the concern of their life to appeal to the finest ideas, regardless of the possibility of their being misunderstood, and they will take care to be true to their ideal standard of excellence and perfection in spite of being misapprehended by the uneducated, for the object of art is not to change Nature, but to interpret her aright. Hume Nisbet has made a very valuable observation which is especially worth attention, and more so in India, where the days of white pictures are not unfortunately yet over. "Give to the public faces ugly as Rembrandt's portraits, yet pregnant with character. I want to see seams and wrinkles and warts as the great Creator left them—indexes to the wearer's character, and not doll faces, which simper and mean nothing. I want noses in all varieties with their own individuality intensified, cheek-bones standing out as they may be in the originals. I want men and women sent down to posterity as they are and not as they would like to be."

The photographic artist who would wish to produce a work of real merit must study closely, with a readily perceptive eye, all the defects and beauties of the sitter before him. He must reject what would not harmonise with the merits of his subject. He must endeavour to give such appropriate expression to his sitters by being affable and bland in his manners and pleasing in his conversation. The photographer must be possessed of a fine perception and a keen insight into human character ere he can determine at a glance what is best to be done. Indeed, much would depend on the mood in which the sitter at the time is found. If he or she comes in hurriedly, a good result is hardly to be expected. The temporary excitement of the mind drives away evenness of temper and disturbs the equanimity of the mind, thereby destroying the characteristic expression of the face. In the words of my friend, Mr. H. P. Robinson, "in fact a true photographer must be a reader of faces, a close scrutiniser of the minor workings of the mind of the subject before him, catch with an eagle glance the peculiarities of gait, the tricks of motion, and be gifted with the rare discrimination which can separate the natural habits from the society affectations." Besides, close observation will show that two sides of every face differ, and that one side is always found to be better than the other. It becomes then the duty of the artist to select and present the picture in the best aspect, thus preserving the action and expression most common to, and quite characteristic of, the sitter. In short, the artist "must throw into his work all his strength, and all his mind, and all his heart, and all his soul."

To make a picture of the subject before the artist, as much would depend upon the inspiration of the moment as upon his own individual feelings. A photograph may be a likeness, yet it may not be a picture. To make a picture it should have unity of light and shade, expression and truth, balance and repose, and variety and tone, by by which alone the represeutation becomes perfect.

Chiaroscuro.

Shadows are said to be the natural attendants of light, and every student of Nature must have observed how oue balances the other. In art, extensive shades contribute in a great measure to the beauty and effect of a production. Shades help, by a harmonious blending with the light, to give brilliancy, richness, and animation to the subject. No less do they serve to give a sort of pause to the eye, exercising an alternating influence which prevents the sight from being fatigued by a constant staring at the illuminated parts of the picture. With such an end in view the masses of light should be so arranged as to be in harmonious dependence. Without, therefore, a well-balanced arrangement of light and shade, pictures lose their breadth, roundness, expression, and sentiment, and would become quite flat and insipid. The end and aim of arranging the masses of light and shade are to give a pictorial effect to the whole and make it look striking and beautiful. This knowledge of the way in which light and shade, with their respective intermediate gradations, are arranged, and to which the name of Chiaroscuro is given, is of supreme importance for an art student to acquire.

(*To be continued.*)

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, NOVEMBER 10, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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THE DECLINE OF ENGRAVING.

LINE engraving in this country is said to be almost defunct. As we stated in a recent note the publishers of the *Art Annual* announce the engraving of Holman Hunt's "Finding of the Saviour in the Temple," presently to appear therein, will probably be the last which will be produced in Britain. The process which has elbowed line engraving out of the field is photogravure, and more than one well-known line engraver has admitted that the new comer can produce effects quite unattainable by the burin. It needs no great acquaintance with either art to judge between these two methods of reproducing a painting in black and white. In the former very wonderful results are obtained by the skilled engraver, and it would seem almost impossible that such minute lines could be cut with such precision by hand. But in the latter we have something different. Not only are the lights and shades reproduced with fidelity, but the very brush marks, the ridges of paint, and the little dabs of colour, which give such effect to the high lights, seem to stand up above the surface, as if one could touch them, or level them with a palette knife, as could be done with the original painting. In the one case we have as good a copy of the original work as the skilful disposition of lines and dots can give us; and in the other we have an actual reproduction of the very tool marks of the artist. The line engraving is again a work requiring many months of highly skilled labour, while the photogravure is a matter of a few hours, which certainly requires skill, but skill not wedded with artistic education and ability.

What photogravure has done for line engraving—and the popular impression is that it has done for it altogether—the process block is accomplishing for wood engraving. It is curious to note that the first formidable rival to line engraving on metal was the art of line engraving upon wood, which owed its origin, or rather its revival, in this country to Thomas Bewick. The early wood engravers copied, and successfully reproduced, the methods of working which had long been adopted by the line engravers, while the nature of the material which they cut enabled them to work with much more facility and consequent economy of time. Now, it is the wood engraver who has found a formidable rival in what is known as process work, and mechanical etching of lines has usurped to an enormous extent the work of the graver. In a recent article in the *Daily Telegraph*, this modern rival of the wood engraver is somewhat unnecessarily abused. We are told therein that the *Punch* cartoons by Sir John Tenniel are still boldly and bravely interpreted by his wood engraver, "but other members of the artistic staff have taken to black and white 'processes,' and give us more or less ragged and scratchy imitations of pen and ink drawings." This statement is certainly open to question. Sir John Tenniel may prefer to do his drawings on wood, and trust to the skill of the engraver to deal tenderly with them, but it is certain that the majority of artists prefer to work on Bristol board in pen and ink, and to have their lines reproduced in facsimile by the zinc process. And they certainly would not show this preference for process work if the blocks produced "more or less ragged and scratchy imitations" of the originals. Such faulty work is known as having "rotten lines," and this is due to bad etching, bad materials, and bad workmen—a triology of accidents which is easily secured by going to the cheapest process workers. The same authority says, "More lamentable still are the blurred and sooty reproductions likewise due to processes which lugubrious presentments surfeit the columns of the monthly and weekly periodicals." Here is another sweeping assertion which condemns the good with the bad. Probably the writer does not know that some of the best pictures in our first-class illustrated periodicals are due to process work. He does not specify the kind of pictures he refers to, but we fancy that he aims his shaft at half-tone blocks. Some of these in certain publications are unutterably bad, the fault being generally due to poor paper and ink rather than a bad block. But to condemn all because some are bad is not fair criticism.

Referring once more to line works by process. This method of illustration is in reality still in its infancy, and the majority of artists have not yet mastered its peculiarities. It requires a certain amount of apprenticeship before the best effects can be secured, and there is one consideration that is often lost sight of when comparing drawing on wood with that which is supplanting it. In the first the work had necessarily to be of a small and delicate character, for it admitted of no after reduction to smaller size. But in the latter, the artist has free play, and a bold and coarsely executed drawing a couple of feet in length can be reduced to an apparently delicately executed facsimile of only a couple of inches across. This is an extreme case, but it will serve to illustrate the wide difference between the two methods of work. But we are certain that if an artist familiar with the process execute a drawing for reproduction as a block, and that if the execution of that block be of the best, the most expert will be unable to tell whether a print from it is due to wood or to process.

THE ALUMINIUM FLASH-LIGHT.

BY T. BOLAS.

ALUMINIUM has a much higher kindling point than magnesium, and, consequently, when aluminium filings are blown or dusted through an ordinary flame, they do not ignite, as they are not in the flame sufficiently long to become heated through. Again, aluminium, if heated in a crucible to a white heat, scarcely oxidises, as the metal does not boil at this temperature, and a very thin film of oxide protects the surface. Magnesium would boil and blaze in a white-hot crucible, as the vapour would burn.

If, however, we take the fine powder of aluminium, now so largely sold as a "silver" bronze, and blow or dust this through a flame, it becomes heated to the igniting point, and, weight for weight, yields a more powerful light than magnesium.

The commercial aluminium bronze powders contain, however, a trace of greasy material, which prevents the grains readily separating; and if the powder contaminated with grease is blown through a flame, or used in an ordinary flash-lamp, it tends to blow through in clots, and a large proportion escapes combustion.

This grease may be driven off or destroyed by heating the bronze powder to about the melting point of zinc; and, for operating on a small scale, it is sufficient to heat it in a test tube over a spirit lamp. The powder which I bring before you to-night has been thus heated, and it is readily blown about by the slightest breath. It ignites readily, and burns completely when used in an ordinary flash-lamp; indeed, it burns more completely than does magnesium dust, as it is impracticable to use magnesium in an extremely fine state of division, owing to its tendency to oxidise spontaneously. Aluminium, on the other hand, can be stored in a minutely fine state of division without fear of deterioration by oxidation.

One incidental advantage of aluminium over magnesium is the non-irritating character of the fumes of oxide; magnesium, on the other hand, being an irritating alkaline earth.

The sample of aluminium powder before you consists of scales about a five-thousandth of an inch thick, and it is manufactured in Germany, the English agent being Mr. W. C. Horne, of 2, White Horse Alley, Cowcross Street, London.—*London and Provincial Photographic Association.*

THE WIDE ANGLE CLUB.—X.

THE QUESTION OF LADY MEMBERS.

IT is with regret that we have to chronicle a very unpleasant meeting, one in fact that nearly led to a free fight. It appears that the Exhibition Committee wanted to propose its wife as a member of the great Wide Angle Club. In the ordinary way the nomination might perchance have slipped through without comment. But the Exhibition Committee rather unwisely unburdened itself to one of the members a few days beforehand. Then the fat was in the fire at once, and everything was in a fizzle. The next evening a select and solemn conclave took place at the "Cow and Hedge" Inn, when Messrs. Reading, Newriver, Slackey, Paley, and Fordwell each in turn gave their views, between sips of Scotch hot with two lumps, upon the serious crisis that threatened their beloved Club. A formal oath of conspiracy having been sworn to by each in turn, it was resolved to fight to the death, the motto being:

"No surrender, no women, fight or bust."

Mr. Paley's suggestion, that they should parade the principal streets of Bumbletown with a band and a big banner inscribed something to this effect—

HELP THE POOR MEN
ON STRIKE
AGAINST THE INTRODUCTION
OF LADY MEMBERS TO
THE WIDE ANGLE CLUB.

WE DON'T WANT 'EM.
WE WON'T HAVE 'EM.
R.I.P.

was thought unwise, though Mr. Fordwell said he would beat the drum himself if necessary. However, a diligent study of the rules elicited the power of calling a special general meeting by any five members. Thereupon a meeting was at once decided upon, and the document duly written and signed. Mr. Newriver thought it would be well to sign it in red ink to represent blood ; but, as there was none upon the premises, the idea had to be given up.

We must pass over the various items preceding the meeting, for want of space. The eventful night arrived, dull, gloomy, with drizzly rain ; but still, when the hammer of the President came down kerflunk on the table, a goodly number of members were present.

"Fellow-citizens," commenced the President, "we have met—ah—we are here—ah—to decide a solemn question. Fellow-members—ah—inhabitants of Bumbletown, glorious Bumbletown—ah—let us—ah—to business. (Cheers.) The question to-night—ah—is one of ladies—dear, sweet creatures."

The Exhibition Committee then rose, glaring at the conspirators who had signed the requisition, to do which it had to glare in several parts of the room. "What I wants to know is this : who objects to my wife? She can make mince pies, custards, or tarts against anyone. I says it again, who objects ? Let him speak out, or for nevermore hold his tongue in pieces."

Mr. Fordwell said it was not a personal question at all. He did not know the good lady from Eve, but he objected to the presence of ladies altogether. They had quite enough of them at home.

Mr. Paley asked how they could smoke and drink if ladies were present.

The Exhibition Committee said it could answer for its wife, that she would even take her share of whiskey rather than incommode the members.

Mr. Newriver thought the Exhibition Committee would act wisely in not forcing a division upon the question, and should withdraw the nomination.

The Exhibition Committee : "Certainly not ; I dare not go home and tell her that."

Mr. Reading : "This is funny."

The Exhibition Committee : "No it ain't."

Mr. Crediton said the rule read that the Society was to be composed of gentlemen. That, of course, meant ladies, as the masculine gender was always supposed to take in the feminine.

Mr. Fordwell objected, and said that if ladies were admissible the rule would have stated so.

Space will not permit of a verbatim report, but hard words and threats of "heaving bricks" followed. Finally the President closed the discussion by calling for a vote by ballot. Mr. Crediton objected to the ballot, but the President told him to "come off." The first result was a tie, which left the Chairman to throw in a casting vote, and it was evident he did not like the situation.

"Fellow Bumbletonians," said he, "this is an awkward position for your Mayor. To tell you—ah—the candid truth—ah—the Mayoress will be interested in this matter, and if she—ah—if she knows that my—ah—my casting vote settled the matter, she will—ah—she will settle me." And though given forth as a joke, the sickly smile on the President's face revealed his anxiety.

It seemed a dead lock, but Mr. Fordwell suggested that if the Mayor was not to vote at all, and if the Exhibition Committee, as became the interested party, was to withdraw from the room, a decision would be arrived at.

The Committee drawing itself to its full height (5 ft. 3¾ in. and a bit) said, "If I withdraws, I does it for ever," and so saying he left the room.

The second ballot made a majority of one against the admission of ladies to membership. And as the members mopped their wearied brows, they all expressed satisfaction that the matter was settled.

ART REAL: ART MANUFACTURED.

"Here's to yer, Fuzzy-Wuzzy."—
Barrack-room Ballads, RUDYARD KIPLING.

BY H. A. HOOD DANIEL, F.S.I.

ARE we photographers going forward in the general advance in art and science, or are we retrogressing from a want of earnestness, or are we standing still, wasting our opportunities, and trying to deceive ourselves into believing we are doing something that we are not ?

With regard to means and processes we are certainly not guilty of the first two, thanks to those patient and true investigators and experimenters whose ever-honoured research has done so marvellously and so much for photography. But as to what we produce, our pictures, which should be things of beauty, and so joys for ever (and they need not fade nowadays)—are we not in imminent danger of being justly accused of "faddism," of a very commonplace and unrestful searching after novelty, of a masquerading or shoddyism? Indeed, I fear so ; and let me say I truly believe, nay, am convinced, that any such guiltiness with regard to our art (and I maintain it *is* such) will bring us face to face with a bugbear, that which has now become the greatest curse to the painter's art, I mean Fashion ; that which crushes genius and starves the possessor, and makes his talent "a drug in the market," but salaams to, flatters, and even worships, novelty, and that which "catches on," to use an Americanism.

If we be photographers, why on earth must we in our productions as such try and fancy we are painters ? Is not photography strong enough, rich enough, beautiful enough, without making it look ridiculous in the eyes of the public and true lovers of art by trickery, mimicry of a distinct art, and eccentricity bordering on the comicality of the productions of Egypt or ancient Britain ?

What *is* the art of picture-making ? With regard to landscapes and portraits, is it not to hold the mirror up to Nature ? Is it not to present as faithfully as it is possible that which the healthy man or woman sees ? Is it not to place in our hands, on our walls, or elsewhere, scenes, figures, and so forth, and to do so realistically and naturally that we may (as we have often done) lose ourselves in thought and reminiscence to the extent of believing we are miles away, or are holding sweet converse with one before us? Surely that is so. But, ye gods! preserve us from being guilty of familiarity with such outline as has been placed before us by some of late; let us not be convicted of such a "falling away," such a following of Bacchus as must have been necessary to make these said outlines (save the mark) appear natural in our eyes.

Can there be anything more delightful than the haziness of outline in a picture with warm summer mist, of distance at sea or on the horizon, of accessory or minor portions in a portrait? Assuredly not. for it is Nature. But must we always live in such surroundings; must we pretend to believe that we cannot see, until we bestow exclusive attention upon it, whether we are looking at a flock of sheep or an assemblage of wooden toy horses? And yet I am not extravagant in the simile. I myself saw at an exhibition not long since, in a photograph of a landscape, what was intended for a man driving, what?—well, it looked like a cross-legged table—but, as I imagine it was intended to be a moving object, I suppose it was a horse or a donkey; but, oh! how perfect in "fuzziness." And this is art!

If it be so, then yet another art must be created, "the art of interpreting photographs," for Walker tells us that "art" is "the power of doing something not taught by nature and instinct"; and I defy any honest man to say he knows by nature what are represented by some of the photographs of that so-called "school" (whose disciples surely must adopt the unintended, but suitable lines of Kipling's, at the head hereof); therefore, to understand them, may be an "art."

Again, why these coarse, washed-out-looking, sail-cloth pictures, photographs on canvas? Is it because painters paint on canvas? Surely such were the acme of affectation and childishness. Now let us reason a moment. Why does a painter produce his picture on canvas? There is one answer only. Because of its lasting nature and lightness, and its power to support, undamaged, the paint, the picture being of large size. But the painter's canvas is prepared with thick layers of white paint first, so as almost to obliterate the grain; and, in very many cases, he paints pictures of smaller size on panel or millboard. Not so your "painter-copyist." He does *his* picture (because it is smaller?) direct on to the canvas. How charming, how delightful, to make the sweetly delicate skin of a beautiful woman as much like a potato sack as possible! How artistic to carry a good thick cord of the canvas through the centre of the eye, calling on the way at the man's nostril, and finally settling down in his breast-pocket; or in a partially draped figure, cutting up the flesh gradations and tones, as if the model or sitter were made of plaster on a wickerwork frame! And this is art!

Do you like the "chiaroscuro" which a rough paper heightens? I do; it is delightful; use it by all means. Do you like the breadth produced by shoulder lines and drapery softened off, and the features thereby made more telling and impressive? Do you like the dreamy and enticing effect of distance melting away into subdued definition? Of course: verily it is beautiful; it is nature. And more: if a valuable enlargement—or, for the matter of that, any picture—be thought less safe, less enduring on paper, by all means print it on a fine texture Nainsook silk or some such material, such as one very pleasing example at the "Photographic Salon"; there was breadth, but there were no asperities.

Let us do all these things, and everything natural and in good taste, and pleasing; but oh! in the name of all that we have been taught is *real art* expel all that savours of art manufactured, of pedantry, of shoddyism! Don't prostitute the use of your Ross or Dallmeyer objective with your "fuzziness"; don't let your pictures produce dizziness on the spectator's vision, or make him feel he is everlastingly looking at the landscape from an express train window. If we desire to convey an impression to the mind, let us do so, and not suggest a problem to be left unsolved. Let us focus our pictures, *for each part will, like nature, equally and in its turn, recede from focus when the eye is concentrated on another.*

Let us improve, let us beautify; but, I would again say, don't let us try and be something else; don't make bogus "schools," and, above all, don't bring photography into ridicule and at the same time simulate the "dog and the shadow."

TWO PHOTOGRAPHIC LAWSUITS.

I.

FRANK SMITH *v.* H. BOWN.—On Tuesday, October 26th, before the Registrar at Southwark County Court, Frank Smith, photographic assistant, of Hanley, Staffordshire, sued H. Bown, 43, New Kent Road, for £4, salary due, and salary in lieu of notice. The plaintiff was represented by Mr. Henry Philcox (Messrs. Chipperfield, Ingham, and Philcox), and defendant was also represented by solicitor.

The plaintiff stated that he saw an advertisement as follows in the *British Journal of Photography*, August 25th, 1893:—

> WANTED, a respectable Operator and Retoucher; must be good and quick. Few hours on Sunday. Close at five on Thursdays. Wages, 40s. per week. No duffers need apply.—H. Bown, 43, New Kent Road (near Tarn's).

In reply, he wrote a letter on August 28th (produced in Court), stating his experience, giving particulars of his former situations, agreeing to the terms of the advertisement, and enclosing a sample of his work.

On September 6th plaintiff received a telegram, produced in Court, which said:

"Yes, you can, at once. Wire reply.—Bown, 43, New Kent Road."

The same day plaintiff wrote a letter (produced), saying that the telegram was received too late to reply by wire, as office closed at 8 p.m., and accepting the situation.

On Thursday, September 7th, plaintiff called at defendant's studio, and was told to commence work the next day.

On Saturday evening, September 9th, plaintiff received twelve shillings wages for two days, and defendant told him to come to work on the following day.

On Sunday, September 10th, defendant came into the studio, stated that the plaintiff was no good, and ordered him to leave the place, refusing to pay him any salary.

For the defence, the facts as stated were admitted; but defendant said that, when plaintiff arrived on Thursday, September 7th, he (defendant) had offered to give him a trial. It was contended that the advertisement, letters, and telegram did not constitute an engagement, and that, therefore, there was no liability to pay salary or necessity to give notice. Defendant had not paid plaintiff's fare from Hanley, and swore that he had no idea that "Hanley, Stafford," was very far from London.

For the plaintiff a witness was called to prove the custom of the trade as to engagements.

For the defence, two employés of the defendant were called to prove that they heard him say to plaintiff that he should "have a trial."

Verdict for the defendant, with costs of two witnesses.

II.

At the Portsmouth County Court, on October 26th, before his Honour Judge Leonard, Harry Edward White, photographer, of Commercial Road, trading as Lionel Bartram, sought to recover £5 4s. 6d. for work done from Inspector Prickett and others.

Mr. A. T. Ivens appeared for the plaintiff, and Mr. G. H. King represented the defendants.

Mr. Ivens, in opening his case, said the defendants were the Testimonal Committee of the Police Force, who were organising a present of photographs to the late Chief Constable (Mr. A. W. Cosser) on his retirement. They entered into an agreement with Mr. Wilson, the plaintiff's agent, and they now sought to repudiate their contract.

William Wilson, residing at Stamshaw, permanent agent to the plaintiff, said that he saw Detective Williams and arranged that the photos should be taken and sold at 2s. each copy. They were to be put in an album.

Mr. Ivens handed in a contract, but his Honour pointed out that it said nothing about terms.

Wilson repeated that the contract was that the copies should be sold at 2s. each, and the mounted police, the Fire Brigade, and the Buckland and Landport divisions were taken. Inspector Prickett also ordered a copy of an old photo of the police force at the time they wore tall hats, and two photos of Mr. Cosser.

Have they ever given any reason for not carrying out their arrangement?—I don't know. I saw Inspector Prickett, and he told me that the services of my employers would be no further required. He said the committee decided it, and he had to do the dirty work. (Laughter.)

Mr. King: Now, were not you to take the groups, and get your profit out of the sale?—That was when we were going to take the whole force.

Did you hear that the force would not have anything to do with them?—I heard only one complaint.

But Inspector Prickett told you they would not have the photos after you submitted proofs?—Not until a fortnight afterwards, when he had made arrangements for us to take the other divisions.

But you could not expect them to have a picture with hands in it like this one of the Chief Constable?—That's the gloves. I could not help it if the Chief Constable's gloves did not fit. (Laughter.)

Mr. King: In this photo, your Honour, the Chief Constable's gloves and whiskers have been touched over. In the picture of the mounted police all the horses have been touched over. Is that since the photo was taken?—I don't understand it.—Mr. Cosser's horse has been touched up. (Laughter.) In one of the divisions your Honour will see that a moustache has been put on one man who has got none. (Loud laughter.)—Witness: The man must have moved. (Laughter.)

Mr. King: And in the picture of the Landport division a pair of white ears have been put on ex-Inspector Coles, as well as his own. (Loud laughter.) He is in Court for your Honour to see. (Laughter.)

Re-examined by Mr. Ivens: We were not to give any photos to the committee; they were making the presentation to Mr. Cosser, not us.

Harry Edward White, the plaintiff, deposed that his usual terms would be a guarantee of thirty copies at 2s. each, or a guinea for taking the group. With regard to the touching, all pictures had to be retouched, and in the photo of the mounted police he pointed out that it was impossible to keep horses still in the early morning.

Now this picture of Mr. Cosser?—It is an excellent photograph. I was only to submit one copy for approval, and the others were to be up for approval.

Mr. King cross-examined the witness at some length, and he maintained that the pictures were excellent.—Mr. King handed in a number of photographs taken by Mr. W. V. Amey, and said that these were those presented to the Chief Constable. He called his Honour's attention to the difference between them and those taken by the plaintiff.

In further cross-examination the plaintiff admitted that though the photographs were to be 12 inches by 10, they were not quite so large; that was only a term of the trade, and the pictures he took were of the size generally understood to be 10 inches by 12.

Mr. A. W. Cosser, the late chief constable of Portsmouth, was called by the plaintiff, and said it was not true he expressed approval of the photo of himself taken by the plaintiff.

Mr. Ivens: What did you say?—I said, "I suppose it is like me." It was Sergeant Barron said it was good; I did not think it my place to express any opinion.

Mr. King: And you did not think it a good one?—Well, I have bought several copies of the photo taken by Mr. Amey and none of those taken by the plaintiff. (Laughter.)

Mr. King. addressing the Judge for the defendants, said that the photographs were taken and were to be subject to the approval of the committee. The committee refused to have anything to do with them, regarding them as inferior work. They went to Mr. Amey instead, and he supplied them with photos which gave every approval, getting his profit from the copies he supplied to the police force.

His Honour, without calling upon the witnesses for the defence, ruled that the plaintiff had not fulfilled his contract, and found for the defendants.

Mr. King asked for costs.

Mr. Ivens : Surely you don't want costs?

Mr. King : It is a most barefaced endeavour to force these photographs on the defendants. I have five witnesses.

His Honour : I see no reason why I should deprive the defendants of costs.—*Evening Mail.*

WAYSIDE WHISPERS.

IS the boom of amateur photography in any way responsible for the decline and fall in the sale of portraits of professional beauties? The idea is quite a possible one, and it is not difficult to imagine that those who had formerly been content with the ordinary photograph of commerce would much prefer a portrait which was the result of a snap-shot of their own. But, whatever may be the cause, the fact that the sale of photographs of actresses and persons of note has diminished is established beyond all doubt. It was not an unusual thing to sell five hundred copies of Mrs. Langtry in different poses every week. Now, he is a lucky man who can dispose of a dozen.

Other well-known personages of society fame might be cited as similar instances. Maude Branscombe, Mary Anderson, Connie Gilchrist, Belle Bilton, and Wilson Barrett are the names which most readily occur to me at the moment, and it is a fact very difficult to explain, but, nevertheless, a serious one to professional photographers, that these, who at one time brought considerable grist to the mill, are now almost entirely unproductive from a photographic point of view.

Every year the report of the Postmaster-General makes public the attempts of the authorities to perform miracles whilst they are often quite at sea respecting the most commonplace of common duties. The story of the safe delivery of the letter which, together with the address, was badly written in shorthand on the adhesive side of a postage stamp is familiar to us all, and we have long ceased to be surprised that epistles vaguely addressed to "Mr. Smith, London," or "Mr. Macdonald, Edinburgh," somehow reach their destination.

If those who annually ask the Postmaster-General to perform miracles were to emulate the example of the Nebraska woman, about whom the report tells us this year, the task of the authorities would be lightened, and they would then have more leisure to attend to the ordinary duties of life. The Yankee matron sent with her request a "portgraf"—which, being interpreted, means photograph. Her letter is so quaint that it will bear reproducing :—"For the London General Postmaster, City of London old England. Dear sir,—I am Living in North America and have Lost all track of my Parents I enclosed you a Portgraf of a young man that is in the Post Office under your charge who was going to marrie my youngest sister by name —— About 3 years ago if you will kindly hunt the original of the Picture out and Let him write me if he knows the Wear Abouts of My Sisters or Brothers Mother and Father Mrs —— who was living in Alls burry, Bucks England 3 years ago. Dear Sir if you will kindly Do this favour I will think you are very kind in Deed. I remain, yours very respt, J—— B——." It is satisfactory to know that the photograph was the means of communication being restored.

Is there absolutely no limit to the possibilities of photography? Lord Randolph, it will be remembered, carried a kodak (according to report) on his memorable lion-hunt in Darkest Africa, and now Mr. Phil. Robinson, in his new book, "Some Country Sights and Sounds," describes how a tiger was photographed in the very act of killing its prey. It wasn't a menagerie or property tiger either, but a big, full-blooded beast in its native jungle. The artist, it appears, had focussed on a buffalo when a tiger rushed at it and struck down the great horned monster with a single blow of his right paw. The camera was only about seven yards from the buffalo, and, the spring shutter being released, a negative was secured which, if not absolutely a good one, was "an authentic picture from the life of the most terrible of carnivorous beasts at the precise moment when it had stunned its huge prey." It is not stated whether the bold photographer, having secured his picture, very promptly decamped ; but it may be presumed that he did. And small blame to him, say I.

Mr. W. H. Lonley Johnstone is responsible for the following anecdote on photography in East London :—"A friend of mine was rambling along Whitechapel with a detective camera under his arm. An Italian organ-grinder became aware of it, and expressing some curiosity the photographer told him to stand by the side of his wife and be taken. They were full of the most innocent delight and were posing in a bewitching attitude when an old harridan popped out of an adjoining door and roughly questioned the twain, 'What is 'e goin' to do?' 'Jis zhentelmen vil photograv us,' was the reply. 'Wot's 'e want for it?' demanded she. 'Noddings,' was the reply, a little startled. 'Gar on,' was the withering retort ; 'don't you 'ave nothing to do with it. If 'e's doin' it for nothing, 'e's up to no good!'"

Captain Jinks.

The Photographic Society of Great Britain.—The Exhibition of the Photographic Society of Great Britain will close on Wednesday, November 15th. The ordinary meeting will be held on Tuesday, November 14th, at the Gallery, 5a, Pall Mall East, when papers will be read by Herbert W. Hughes, F.G.S., A.R.S.M., on "Photography in Coal Mines," and by Professor W. K. Burton, C.E., "On the Range of Light impinging on a Plate during Exposure in the Camera."

PATENT OFFICE LIBRARY

CORRESPONDENCE.

THE SALON.

SIR,—Mr. A. R. Dresser, in a communication to the columns of your current issue, alludes again to a complaint made a little while ago by your correspondent, "M. or N.," that the Salon has been unfairly made a two or three man show, and that the Committee has a preponderance of exhibits. This idea has, however, I think, been ably refuted by the writer of the rejoinder signed "Forward," and it is scarcely necessary to do more than again draw attention to the fact that the Committee (numbering forty-one in all) includes nearly all the leading pictorial photographers in order to account for a result which could hardly help happening in the natural order of things. Mr. Dresser considers that it is likely to cause the public to hold aloof from sending in to future exhibitions, and even anticipates that the Salon may fall through. The entire success, however, both financially and in public estimation, of the first of the series assures the certainty of its continuance, and, no doubt, in future years much will be done to render the exhibition still more attractive. It will take time, of course, to make such an institution thoroughly known, and it will only fairly be judged when at least three more exhibitions have been held. With regard to the policy it may pursue, and its attitude towards would-be contributors, many questions arise. I do not myself think that it need fear the effect of any action which it has taken this year, or that it will lose the support of any exhibitors whose loss it may have any grounds to regret. The first duty of its promoters, both in its pecuniary interests and in the interests of photographic art, is towards those from whom it derives its chief support in these two directions; and I am bound to say that, in my opinion, this chief support does not come from what is called the photographic world—that is to say, from the large mass of those who, in one way or another, make use of a camera. I have long held this opinion, and, in my connection with this year's Salon, I have had ample opportunity of testing it. Our public has by no means been mainly composed of photographers, but rather of the outside public, who love pictures in any form. In fact, the large mass of photographers have kept aloof. Many shining lights have not been within our walls, and I think I should be right in saying that not even all the representatives of the photographic press have deigned to pay us a visit, or give even a passing notice in their columns. I do not, however, complain of this. I wish to emphasise my feeling that, for our future success, we must not forget the greater public. We photographers are very apt to flatter ourselves that the eyes of the entire world are upon us and upon our doings. I do not think it would be too much to say that not one person in a thousand has any notion that there is such a thing as a photographic press, anything beyond a vague idea that there is perhaps an institution relating to photography somewhere in Burlington House, or has even heard the names of those who to us are great artists and important personages. As to the importance of the petty squabbles which have gone on for years in our little world, the general public neither know nor care a jot about them, and they certainly do not influence in the slightest degree the success of this or that exhibition. The public pays its shilling if it expects to get value for its money, and that is all.

I hope that Mr. Dresser—the kindly tone of whose letter I am glad to acknowledge—will not imagine that I am at issue or disputing with him personally, and I am ready to admit that, *prima facie*, there might appear to be grounds for the opinion held by him and by "M. or N." Mr. Dresser has made his mark in photography, and it is certainly to be hoped that he will be conspicuous in future exhibitions. His communication seemed to form a peg on which I might hang a few remarks, and these I do not pretend to be other than expressive of personal and unofficial opinion. I am confident that my letter will not appear to you, Sir, to be "needlessly ill-tempered." I say this because, as regards some people, the best intentions cannot always guard themselves from being (shall I say, thoughtlessly?) misconstrued. Well, Sir, I happened to come across, in last week's issue of your contemporary, the *Amateur Photographer*, an editorial note, in which a communication of mine to the *British Journal of Photography* is characterised as "needlessly ill-tempered." I was certainly amused at the paragraph, but, at the same time, puzzled. Would your contemporary gratify my curiosity, and perhaps that of others, by pointing out where the ill-temper came in?

Allow me, Sir, to conclude my unofficial letter by officially asking you to remind your readers that the "Photographic Salon, 1893," closes its doors to-morrow (Saturday) evening at ten o'clock.

November 10th, 1893. ALFRED MASKELL.

THE BENEVOLENT.

SIR,—Will you kindly, as in former years, direct the attention of your readers to the Benefit Night of the Photographers' Benevolent Association, which will be given at the Exhibition of the Photographic Society of Great Britain, 5A, Pall Mall East, on Friday, November 10th? At the same time may I have a few lines of space for a very special appeal? We are just completing the twenty-first year of the Benevolent Association. The calls are more numerous and more urgent this year than they have ever been in the past. We have already granted relief to the extent of £134, and our income for the year to date has been £59. It is an unfortunate feature of the Benevolent that it is supported by such a small number of subscribers. The income almost entirely comes from amateurs and the photo-material trade, and very little from those who really benefit by the Association. The Committee is most anxious to increase the number of subscribers. The minimum subscription is only 2s. 6d. There are few photographers or assistants who cannot afford this, and we earnestly appeal to those who are not subscribers to become so. We are especially anxious to celebrate the twenty-first birthday by instituting a run of greater usefulness than ever before.

H. SNOWDEN WARD, Hon. Sec.

Memorial Hall, Ludgate Circus, E.C.

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

19,914. HENRY GAMWELL and CHARLES GAMWELL, 15, Water Street, Liverpool.—"Improvements in or connected with Photographic Cameras or Apparatus."—*October 23rd, 1893.*

20,042. **Adolf Hesekiel**, 18, Buckingham Street, Strand, London.—"Improved Sensitive Paper for Photographic Purposes."—*October 25th*, 1893.

20,264. **Frances Wilkinson**. 17, St. Ann's Square, Manchester.—"Improvements in Mounts for Photographs and the like."—*October 27th*, 1893.

20,277. **Ladislas Neivsky**, 14, Gransden Road, Shepherd's Bush, London.—"Improved Camera, forming complete Apparatus for Taking and Finishing Photographic Pictures without aid of a separate Dark-room."—*October 27th*, 1893.

20,297. **Alfred Julius Boult**, 323, High Holborn, London.—"Improvements in Cameras" (Joseph Zion, France).—*October 27th*, 1893.

20,342. **Frederick J. M. Gerland, William Charles Hespe**, and **Max Levy**, 1, Queen Victoria Street, London.—"Improvements in Half-tone Negatives for Photo Processes" (date applied for under Patents, &c., Act, 1883, section 103, March 28th. 1893, being date of application in United States).—*October 27th*, 1893.

20,372. **Joseph Hart Balfour**, 6, Chichester Street, Belfast.—"Improvements in Photographic Apparatus."—*October 28th*, 1893.

20,379. **Samuel Dickinson Williams**, Moorlinch House, Clytha Park, Newport, Monmouthshire.—"Improvements in Magazine Cameras."—*October 28th*, 1893.

20,405. **Maria Lake**, 43, Scarsdale Villas, Kensington, London.—"Improved Devices for Mounting Photographs and the like."—*October 28th*, 1893.

PROCEEDINGS OF SOCIETIES.

West Surrey Photographic Society.

A goodly number of members met on Wednesday last to hear Mr. H. S. **Fry** give a lecture on "Lantern Slides and Transparencies." Mr. **Winsford** presided. Previous to the lecturer's arrival the rules, as amended by a sub-committee appointed for the purpose, were brought up for consideration and approval. After some discussion on the first three rules the matter was adjourned to the next meeting. Mr. Fry then proceeded to give an interesting description of the characteristics of a good lantern plate, the principal one being that the image should be stain-like in appearance, so that the deepest shadows should be transparent. He next described the slow and rapid plates of the Paget Company's make, on the former of which almost any colour could be obtained by suitable exposure and development, the latter giving black and white tones. The lecturer then addressed himself to the Paget printing-out plates, which are exclusively intended for contact work. These could either be fully printed out or partly printed, and then developed in the same manner as their P.O. paper—that is to say, the plate is first of all soaked in a 10 per cent. solution of potassium bromide for three or four minutes, and then developed with hydroquinone, toned, and fixed in the usual way. Should a plate be too dense it can be reduced by using a weak solution of cyanide of potassium.—On the conclusion of Mr. Fry's address a hearty vote of thanks was accorded him.—During the evening a novel printing frame for the making of transparencies, the invention of Mr. Scott, of Walthamstow, was handed round.

Hackney Photographic Society.

October 31st, 1893.—Mr. W. R. **Barker** in the Chair.

Members' work was shown by Mr. **Hensler**—viz., views taken upon the "Rocket" and Cadett "Lightning" plates; owing to the wide range of subjects treated, a decided opinion was unobtained as to which plates yielded the best results with an equal exposure.

The **Hon. Sec.** showed the Thornton-Pickard Automatic Camera Stand, which has many advantages—viz., automatic locking joints, lightness and compactness consistent with rigidity.

Mr. **Fry**, of the Paget Prize Plate Company, then gave a demonstration upon the new rapid Paget printing-out paper by partial development. Amongst its advantages may be claimed that prints only require partially printing, the rest being developed up to the necessary strength and detail: they are then toned and fixed in the usual manner. To briefly describe the process, it consists of taking the partially-printed print and immersing, without washing, in a solution of potassium bromide 1 oz. and water 10 oz., leaving two minutes or more; it is then washed in water for about five minutes, and then developed with hydroquinone according to formula given by the company; it should then be washed for five minutes and toned with the following combined bath:—Make a stock solution, 80 oz. water, 1 lb. hypo, 1 oz. acetate of lead, and about 1 oz. chalk; then take 5 oz. of this solution, after well shaking, add 1 to 1½ grains of gold, which will be sufficient to tone one sheet of paper. The prints tone rapidly and give a large variety of tones, according to the taste of the operator. The prints are then washed for a couple of hours in running water. The demonstrator recommended not to carry the prints too far in development, as they gained in density in toning. The paper, although very sensitive to daylight, may be manipulated with a very fair amount of gaslight without having any effect upon the finished print.

Hull Photographic Society.

A special meeting was held to receive a demonstration and lecture upon Paget lantern plates, the *pièce de résistance* being printing-out slides and development of same. In the course of his remarks, Mr. **Fry** stated the characteristic qualities of a lantern plate to be—

1. The stain-like character of image.
2. Translucency of the shadows.
3. The power of giving brilliant density and clear glass shadows if required.

The printing-out plates of the Paget Company give an image without perceptible grain, and the shadows do not block up. In this they are fully equal to the best collodion, but they are not suitable for reduction in the camera. With partial printing and development the result can be modified in the direction of greater contrast by a preliminary bath of a 5 per cent. (of each) solution of carbonate and bromide of ammonium in place of the 10 per cent. bromide bath as given in the Paget Company's instructions. Less contrast can be obtained by using a dilute developer, or less of the actual reducing agent in the developer.

Mr. Fry passed through the lantern some examples of the process, and also an interesting set of slides, all from one negative, and illustrating the range of colours from black through browns and reds to yellow, which are possible with the Paget lantern plates.

The usual compliments were passed by acclamation.

LEEDS PHOTOGRAPHIC SOCIETY.

Meeting held on 2nd inst.—Mr. J. H. WALKER in the Chair.

A PAPER was read by Mr. B. A. BURRELL, F.I.C., on Messrs. Lumière's process of cobalt printing. The process is of a recent origin, the first notice of it appearing in the *Comptes Rendus*, June, 1893.

The method is based upon the unstable nature of the cobaltic salts, and their conversion into colbaltous salts by the action of light. The formation of cobaltous and cobaltic hydroxides were shown, the latter being formed by the action of the sodium peroxide (N_2 O_2) on a solution of cobaltous sulphate (CO SO_4 7 H_2 O).

The sodium peroxide requires to be dissolved in water with care, otherwise great heat is evolved, and decomposition ensues into sodic hydrate and free oxygen. After precipitating, the cobaltic hydroxide requires careful washing, to free it from the sodic sulphate formed during the reaction. It is then dissolved by means of a saturated solution of oxalic acid (1 part in 10·5 parts of water). The method of calculating the amount of cobaltic hydroxide (CO_2 H_6 O_6) formed from a given quantity of cobaltous sulphate was described, as it is important not to add an excess of oxalic acid. The oxalic acid is allowed to re-act upon the moist cobaltic hydroxide for about three hours in the dark, the mixture being kept well cooled. The resulting cobaltic oxalate is of a dark-green colour, and is used at once to sensitise the gelatine paper. This is done in the usual manner, and, after drying, the paper is used for printing under a negative. When exposed to light under these conditions, the parts acted upon lose their green colour, being converted into a pale rose-colour, owing to the formation of cobaltous oxalate—a substance but slightly soluble in water. The prints now require developing, this being done by means of a 5 per cent. solution of potassium ferricyanide, which acts upon the cobaltous oxalate, converting it into cobaltous ferricyanide, leaving untouched the cobaltic oxalate still remaining in the print. The resulting prints, which are of a deeper rose colour, require thorough washing (about half an hour) in running water, in order to wash out all traces of unaltered cobaltic oxalate. When this is effected the prints are put into a dilute solution of ammoniac sulphide, and allowed to remain for varying times, depending on the desired tone, a short time for sepia, and a lengthened period for black tones. Any desired tone being obtainable depending on the time of immersion, the print should be washed for a few minutes and dried. The image consists of sulphide of cobalt, and is almost as permanent as one composed of platinum.

The process possesses the following advantages :—

1. Its extreme cheapness.
2. The short time required for washing.
3. The absence of toning.
4. The great permanence of the print.

While the disadvantages are, having to prepare one's own gelatine paper (none in the market at present being suitable) and to sensitise, and use it almost as soon as dry, as it rapidly deteriorates. Specimens of papers and prints in their various stages of development were shown, and prints developed.

CENTRAL PHOTOGRAPHIC CLUB.

FRIDAY, November 10th.—Printing-out Processes, Mr. S. H. FRY.

Wednesday, 15th.—Smoking Concert.

Friday, 17th.—Open.

Friday, 24th.—"Norway." Lantern lecture, by Mr. PAUL LANGE, of Liverpool.

Monday, 27th.—Opening of "One Man" Show, Mr. THOS. FALL. Visitors admitted on production of visiting card.

Friday, December 1st.—Films *v.* Glass. Mr. H. M. SMITH to open debate.

We shall be glad to see visitors to any of the above lectures, &c.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

R. R. L. (co. Dublin).—The two photographs are very interesting, even without the curious lightning markings. You do not state in your letter whether a storm actually occurred during the night exposure, or whether possibly the markings can be attributed to some other cause. They seem almost too near to the camera to be in such accurate focus, one line of light being in front of the foliage on the left-hand side of the picture. We should like to know more about the matter if it is not troubling you too much.

J. K.—You can readily rig up a simple form of stand for copying purposes by furnishing an ordinary deal table with rails to carry your camera, and with an upright board to hold your copy. A very useful and complete form of copying-stand is figured and described in "The Book of the Lantern" (published by Hazell, Watson, & Viney). There are also chapters in the same book dealing with lantern-slide colouring which will furnish answers to your other queries.

M. C. C.—The lens is a triplet, and appears to be in thorough order. Its present value would be about three pounds, for, although not a modern form of lens, it is capable of doing excellent work. The long focus is easily provided for by an extension-front fitted to the camera.

JONAH.—Obviously the shutter was not quick enough for the subject, and we should fancy that it works at a much lower speed than that stated in your letter. The maker would, of course, put it right if it needs alteration.

H. C.—The formula you give is that of a matt varnish ; hence the opacity.

Z. A.—The change of colour is due to sulphur toning. Beware of it, for it will fade.

JENA.—The marks on the plates we attribute to the woodwork of the dark slides in which they were confined for so many days. It is difficult to give a reason for this, but it is a fact beyond question that the grain of the wood, and even the leather hinge, will sometimes thus mark a gelatine plate. The unwelcome marks are generally seen when the woodwork is new. After a time it seems to get seasoned, and the marks appear no longer.

J. P. C.—If the gelatine film of the broken negative remains intact, the best plan is to strip it and transfer to another glass. If you are not accustomed to the operation any collotype worker will do it for you. The size of the film will probably be slightly increased.

CHANGING BAG.—The design is far too elaborate. A window is not required, and its provision only introduces difficulties. A bag with two armholes well protected with rubber bands is really all that is needed, the operator soon learning how to change plates, and to detect the right from the wrong side by the sense of feeling alone.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1837. NOVEMBER 17, 1893.

NOTES.

We hear that the number of entries for the forthcoming International Exhibition at Bristol is very large, and all sorts and conditions of photographs will be represented there. This is as it should be, for the jury selected to make the awards comprise exponents of every school, from the broad or "advanced" to that which regards sharpness of focus as an essential feature of a photograph.

The exhibition of the Nottingham Mechanics' Institution Camera Club is near at hand. Intending exhibitors or competitors must send in their works either on or before December 1st.

Among the forthcoming Cantor lectures to be delivered before the Society of Arts, are three which should be especially interesting to photographers. The lecturer is Mr. Henry Blackburn, who takes for his subject one which he has made his own—"The Art of Book and Newspaper Illustration." These lectures will deal with the necessary education of the artist—drawing for reproduction, modern methods and requirements, influence of photography on the illustrator, examples of drawing for reproduction, the various methods of reproduction from engraving onwards, the author's part in the illustration of books, the book of the past and the book of the future. Here, indeed, is an enticing bill of fare, which all may partake of by obtaining tickets of three Monday evenings, November 27th, December 4th and 11th.

Our readers will also do well to note that Captain Abney will deliver three Cantor lectures in April next on Photometry.

In answer to numerous inquiries we beg to state that the Year Book of Photography for 1894—the thirty-fifth year of issue—will be published early next month. It will contain, besides many other illustrations, a fine portrait study by Van der Weyde, and three other full-page illustrations by the Swan Electric Engraving Company's block process.

Mr. Ives has shown us some remarkably brilliant spectrum photographs produced by the Lippman method, which exhibit several peculiarities. We understand that he will shortly deal with the subject in a paper before the parent Society.

We print on another page an interesting account of the manner in which a photographed document revealed a signature which was quite invisible on the original. There was a suspicion that a name might be there, for there was a vacant space for it. The camera found it out. Dr. Jesserich instanced no more interesting result of photographic aid to the law courts than this one. If there is any modern representative of the Jew Fagin, he will be wise to instruct his pupils in the ways and methods of present-day photography.

In a recent issue of the Photographic News the Paget Prize Plate Company, in a very temperate letter, pointed out that a certain method of development, which had apparently been claimed as his own by Mr. W. E. Woodbury, had been communicated to that gentleman some time ago in confidence by his company when he was in their employment. Upon another page we print a letter from Mr. Woodbury, explaining how the accident occurred.

Is there such a thing as unconscious plagiarism? We think that there must be, for Mr. Woodbury has fallen foul of another worker in the person of Mr. William Taylor, of Leicester. Mr. Woodbury explains the unfortunate *contretemps* by pointing out that both he and Mr. Taylor were writing on a subject that had been written about over and over again, and that little surprise need be excited at the two articles bearing some points of similarity.

The article written by Mr. Woodbury, about which there is all this "pother," appeared in the *Photographic Times* (New York), of which publication, we believe, he is sub-editor, and its title is, "The Action of a Lens simply explained." Mr. Taylor's article is better known from having been published in the catalogue of the Leicester firm, under the title, "The Principles of a Lens' Action." The paragraphs from the two articles, which appear to us to be somewhat similar, are printed below in parallel columns :—

"The angle of view of a lens is determined by the relation of its focal length to the measurement of the image which it can usefully define."	"The angle of view of a lens is determined by the relation of its focal length to the measurement of the image which it can best define."

It is presumed there is some sort of copyright protection in Australia. The suggestion of the *Australian Photographic Journal* that the trade-mark system should be applied to photographs, however, seems to imply that this protection is insufficient. Every photograph to be protected, says a contemporary, should have a trade-mark upon the corner, and if anyone was proceeded against for copying the photograph, "the law would compel him to produce the photograph from which the enlargement was made, and when, on examination, it was found that the trade-mark had been cut away from the photograph, he should be fined or imprisoned." But as an offender, knowing what was in store for him, would in all probability destroy the original, how could the law compel him to produce it ?

No doubt, one particular form of copying is a grievance to the portrait photographer. It used to be a common practice for people to go to some good photographers and have one copy, which they would then send to a copyist, who, perhaps, charged half-a crown a dozen. It never occurred to sitters that they were acting unjustly to the photographer who made the negative, and we know one case where a lady calmly told a photographer that she liked his work, but that he charged so much for prints that she had to send one to others to be copied. She seemed quite surprised when he expressed his indignation. We fancy, however, that this practice has died out. People are better judges of photographs than they used to be, and can tell the difference between a print from the negative and a copy. It is clear the trade in this direction has dwindled, for the papers no longer contain the copyists' advertisements. Some fifteen years ago or so there were three or four from different men every day.

Probably the most complete series of photographs of a battlefield were those taken by Mr. W. H. Tipton, who photographed the scene of the Gettysburg conflict, one of the memorable contests in the American Civil War. These photographs, in the form of stereoscopic views, are occasionally met with in England, and very ghastly pictures some of them are. Mr. Tipton, we learn, is now suing General D. E. Sickles for 10,000 dollars damages for injury done to his photographic business, Mr. Tipton alleging that General Sickles has been influencing the New York veterans against him. The original cause of the quarrel appears to be a trolley-road across the battlefield. Mr. Tipton was largely responsible for the road, and General Sickles was antagonistic — "insanely antagonistic" an American paper puts it—to its construction.

Those who are fond of photographic eccentricities in the way of composite photographs, such as a man carrying himself on his shoulders and the like, will find the latest novelty is an invention by M. V. Bracq, who has certainly gone further than anybody else in this direction. By means of his apparatus M. Bracq can take a photograph of a person lying in a most uncomfortable position, supporting on his uplifted foot or hand chairs on which he himself is seated. Each of his doubles is holding up what looks like a photographic dish, and on these dishes a fourth image of himself is resting. The laws of gravity are set at naught in this picture, which thus represents the impossible. We must refer the curious to *La Nature* of the 4th inst. for an explanation of M. Bracq's method, which we may say in passing is not nearly so complicated as the photograph would lead one to suppose.

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Cleaning Microscopic Slides and Cover-glasses.—Instead of warming the slides one by one over a flame, pushing off the covers, then scraping away the balsam, and cleaning with alcohol, put all your slides together in a saucepan, with a lump of washing soda, and boil them. The heat of boiling is enough to soften most cements and all ordinary resins used for mounting ; and then take out the slides one by one, push off the cover-glasses, and put them back. The action of the soda is to convert the balsam or other resin into a grumous mass, which is easily wiped off with a little rinsing. Cover-glasses can also be preserved for further use in the same way, if desired. There being nothing on the surface of new covers and slides which will resist the action of hot water and soda, this method is preferable to the use of strong sulphuric acid or alcohol, or the other methods given in the text-books. The exact quantity of soda to be used is immaterial ; a piece about the size of an egg to half a pint of water will do.—*Am. M. Micro. Journal.*

PORTRAITURE.

BY SHAPOOR N. BHEDWAR.

(*Concluded from page* 711.)

A PERFECT acquaintance with this subject could only be attained by a close and careful study of those masters who have excelled in this branch of art. Mr. H. P. Robinson, while speaking on this subject, remarks: "The objects of chiaroscuro are first to give a pleasing general effect by dividing the space into masses of light and shade, giving breadth of effect and preventing that confusion and perplexity incident to the eye being attracted by numerous parts of equal importance. Secondly, to so arrange and light the principal object that the eye may see at first, and be gradually and insensibly led over the whole picture; to keep parts in obscurity and to relieve others according to their pictorial value. And, thirdly, to aid the sentiment and expression of the picture."

Unity.

Of the primary necessities of composition, unity has been defined to be "the key-stone of Nature, and expresses the harmony of the Divine mind as rendered in Creation." This is considered an essential element, for it is nothing less than the due relation of the whole to its parts which alone can give to objects their true and touching character. It is thus, by the delineation of such a picture, where unity combines and harmonises in the formation of one whole, that the hand of a master becomes perceptible. Unity preserves the expression of the chief characteristic, and does not dissipate the attention and draw it away from the main point. Besides, it brings all the secondary and other minor qualities in the picture to a focus. The breadth of light and shade is also maintained, thereby giving a tone of solidity to the whole. If the picture contains two or more episodes, unity helps to combine them in such a manner as not to convey to the beholder any sense of dissimilarity, but to produce a complete impression of all that the mind demands in the subject before the eyes. Hence the skill and excellence of the artist would depend on his power of extending the attention to one whole, without which the best of pictures are ruined. This sense of *oneness* must prevail, not only in the massing of light and shade, in the arrangement of figures and different objects in the group to be portrayed, but must be felt in everything else which the picture may come to be made up of. The success of the artist would then depend upon his skill in producing this general effect. This is particularly to be observed in the delineation of portraits where the likeness, the character, and countenance depend more upon the general effect produced by the artist than upon the exact expression of the peculiarities or minute discrimination of parts. In such a case it is unity that combines and produces that sense of satisfactoriness in the spectator which is akin to pleasure. It often happens that figures are scattered without any definite connection with the theme of the picture by the introduction of persons clad in the most incongruous manner, jarring with the tenour of the whole subject, and without bearing any reference to the other parts of the picture. Such incongruity tends to destroy the effectiveness of the whole. The more the lines are left scattered and unbalanced, the more the central idea of the picture is kept apart, and the whole becomes disconnected and produces an effect most irritating to the eye. It may, however, occur that objects are scattered throughout the picture, but, in spite of that, they may be so grouped together that, though each object has its own characteristic and light and shade, they are all so disposed as to give a unity of effect to the whole. This unity of light and shade is obtained by the concentrating of the lights on the chief point in the picture, that the eye may rest and look at it with an undisturbed sense of satisfaction and pleasure. It necessarily follows that the closer the assimilation of idea with the different parts, the greater is the sense of oneness it imparts. In order that the work should approach Nature in all its truthfulness, it must constitute one whole and harmonise its meaning throughout. The artistic arrangement of objects gives truth and vigour to the assemblage of lines and shades in a picture. Hence the greatest pleasure and gratification of the beholder arise from the unity of the whole arrangement, for on unity depends the intention meant to be expressed in a picture.

Variety.

In every pictorial composition variety also plays an important part, for without it the arrangement would not be complete. It is an essential quality, and is a source of great picturesqueness and beauty in every art-production, and may therefore be considered a necessity. Too much of it must, however, be guarded against, or it will become tedious. With variety in form comes variety in light and shade. Alison has observed: "Beautiful forms must necessarily be composed both of uniformity and variety; and this union will be perfect when the proportion of uniformity does not encroach on the beauty of unity." Variety should, therefore, be carefully studied by every student of art for the sake of contrast. When a greater number of objects, irregular and varied, is introduced in a picture, the repetition of some of the objects will tend to increase variety and add effect to the whole. The true end of variety is to give relief to the eye. It helps to re-animate the attention, which is otherwise apt to languish under a continual sameness. It is frequently employed to recreate and relieve.

Tone.

"Tone," according to Ruskin, "is the exact relief and relation of objects against and to each other in substance and darkness as they are nearer and more distant, and the perfect relation of the shades of all of them to the chief light of the picture, whether that be a sky, water, or anything else." Thus a photographer can give tone to his pictures by so balancing his time of exposure and controlling the development as to bring his result most nearly to the truth of Nature.

Judging a Picture.

"Photography," as has been remarked by Wilson in his *Quarter Century*, "has had to bear a great deal of unjust criticism, simply because critics are ignorant of what it means to produce a photograph—what is involved in making a photographic picture. A person who attempts art should be well versed, not only in the principles of art, but should thoroughly understand the technique. And so should the photographic critic not only understand the principles of art, but the photographer's methods of producing the technical excellences of his work should also be understood. Otherwise the critic can have no 'feeling' for his work, and without feeling one may as well get 'out of focus'—diffuse—'at once.'" Constable has also emphasised the same truth in art in the following words:—"Every truly original picture is a separate study and is governed by laws of its own, so that what is right in one would be entirely wrong transferred to another." Mr. Brock Arnold, commenting upon the above principle, according to which a picture should always be judged, takes occasion to remark as follows:—"This is, of course, applicable to the details of art, the grand principles of which are invariably associated and co-existent with true genius; uprightness, earnestness, generosity, sensibility, imagination, and taste, we may be certain of finding in the nature of every man of genius that the world has ever produced. These qualities, so far as they are present in the productions of such men, may best be considered and judged by their individual intrinsic worth. When we commence to compare men of genius one with another, we may very easily lose that nice sense of discrimination necessary for the proper appreciation of different degrees and sorts of merit; for, though all have some things in common, the productions of each one must be judged separately, and each production considered as a complete whole." On this principle in art, a picture, in order to be judged, should be approached as much as possible in the artist's own mood, and seen from his own point of view. Nay, due allowance should also be made for the artist's individual characteristic.

Study of Art.

In concluding my humble remarks on the subject of portraiture, I cannot help quoting from the celebrated discourses of Reynolds on the course of training and study that should be pursued by every student of art in relation to photography: "It is indisputably evident that a great part of every man's life must be employed in collecting materials for the exercise of genius. Invention, strictly speaking, is little more than a new combination of those images which have been previously gathered and deposited in the memory; nothing can come of nothing: he who has laid up no materials can produce no combinations. The more extensive, therefore, our acquaintance is with the works of those who have excelled, the more extensive will be our powers of invention; and, what may appear still more like a paradox, the more original will be our productions. The works of those who have stood the test of ages have a claim to that respect and veneration to which no modern can pretend. The duration and stability of their fame are sufficient to evince that it has not been suspended upon the slender thread of caprice and fashion, but bound to the human heart by every tie of sympathetic approbation. On the whole, it seems to me that there is but one presiding principle which regulates and gives stability to every art. The works—whether of poets, painters, moralists, or historians—which are built upon general nature live for ever; while those which depend for their existence on particular customs and habits, a partial view of nature, or the fluctuation of fashion, can only be coeval with that which first raised them from obscurity." "A life passed among pictures, in the study and the love of art, is a happy noiseless dream; or rather it is to dream and be awake at the same time; for it has all 'the sober certainty of waking bliss,' with the romantic voluptuousness of a visionary and abstracted being. They are the bright, consummate essences of things, and 'he who knows of these delights to taste and interpose them oft is not unwise.'"

WET COLLODION.

BY W. E. DEBENHAM.

THE wet collodion process is the one best adapted for preparing plates to make negatives for line work or photo-lithography, and where clear black and white sharpness of line are necessary. Wet collodion is also necessary for making enamel plaques, when the film is toned with platinum or iridium and placed upon a plaque and fired. Wet collodion is also used for making enlarged negatives, lantern slides, and copying. There are some essential differences in the collodion and gelatine methods. In the gelatine method, the image is developed from the bromide of silver, which forms the sensitive surface: that bromide yields its silver to form the image. In the wet-collodion process, the image is formed of silver, not from the iodide of silver in the film, but from the nitrate of silver which is in the accompanying sensitising bath. Now, although the film in the case of collodion is, as I stated just now, for the most part iodide, there is an advantage in having a certain amount of bromide in it. Formerly, bromide was not used for negative processes, but it was found that a little bromide gave a smoother surface, the plate was cleaner in development and less liable to fog; and, moreover, it was more fit for development by the iron method than the iodide which, was, generally speaking, developed with pyro.

Now to the actual work of preparing a collodion plate. In the first place, you must have glass which is clean; glass which is only *apparently* clean to the eye will not do, it must be *really* clean, or else, where there is a trace of dirt on the surface of the glass—though it may be not sufficient to be seen—the silver will be deposited from the bath under the action of the developer, and will make a stain underneath the collodion between the collodion and the glass. That stain is not only injurious as a stain, but the collodion will, generally speaking, fly up off the glass when the plate is dry. The first thing, therefore, is to have your glass clean. We at one time used patent plate, but that has now gone out of use for this purpose. Sometimes you will find the glass covered with an apparently smoky stain; if you find this, do not use it, or else the collodion will fly off when it is dry, even if it does not cause a stain during development. The glass may be cleaned in various ways, according to the purpose to which it has previously been put. If it is in a very bad state, or has been used for negatives which were intensified with mercury, then you should dip it in moderately dilute nitric acid, say one in five of water. But, generally speaking, it is sufficient to take a piece of list, and roll it into a flat pad; then put a little whiting and water on the surface of the plate and rub it pretty hard with the pad; afterwards wash it under a tap, dry it with a cloth, after which it must be thoroughly polished. Do not stand the plate up to dry on taking it from under the tap, for, if you do, the water will settle and form marks on the glass which you will not be able to get rid of; and you must on no account use glass which has anything the matter with it. I have found the great secret of polishing glass successfully and tolerably rapidly is to use a cloth which is not quite dry. With a perfectly dry cloth it is almost impossible to get glass clean; the cloth must not be so damp as to leave a smear; but, if that is avoided, rubbing the glass with such a cloth will very soon bring it to a satisfactory polish. I have known photographers to suppose that, if the breath flies off rapidly, the glass is clean; but that is a delusion, it merely shows that the glass is warm from rubbing; the breath should dry off smoothly—there should be no streaks. But there is one particular mark which you may see, and that is an appearance something like flames that die away altogether; I do not know how to account for it, but, when you see that, you know it is a glass in very good condition.

Now the glass, being clean, has to be coated with collodion. I prepare my own collodion, and the following is the formula I adopt:—

A.—Pyroxiline	... ...	100 grains to 120 grains
Ether ·720 to ·725	...	10 ounces
Alcohol abs. ...	...	5 ,,

That forms plain collodion. It is allowed to stand for a few hours at least, so that it can be decanted from sediment. The iodising solution is conveniently added afterwards, and not made with the collodion itself. It is made thus:—

B.—Ammonium iodide	... ...	60 grains
Cadmium iodide ...	... ...	40 ,,
Cadmium bromide	... ..	10 ,,
Iodine	... ...	1 grain
Alcohol ·820 ...	... ...	5 ounces

These solutions are then mixed, and together make up a pint.

When the plate is coated with collodion containing iodide and bromide, and placed in a solution of nitrate of silver, a double decomposition takes place. The iodide and bromide form iodide and bromide of silver in the film itself, and leave, of course, a certain amount of nitrate of cadmium and nitrate of ammonium in their place. You must, however, have a considerable excess of nitrate of silver, or else you will have nothing to develop from, as it is that from which your image is formed.

The sensitising bath is a thing which used to give old photographers a good deal of trouble, as it was so liable to get out of order. Ordinary nitrate of silver will do to make the bath, and a bath successfully made with it cannot be distinguished from that made with triple recrystallised; and, in order to make tolerably sure of success, you can adopt the method which I will describe. The nitrate of silver is first made up with about one-third of the amount of water which is to form the bulk. The strength of the bath should be—

Nitrate of silver ...	... ...	30 grains
Water	... ...	1 ounce

which is something like fifteen ounces of water to every ounce of nitrate of silver. Suppose we have sixty ounces of water to four ounces of nitrate. In the first place, put in about one-third the amount of water: add a little liquor of potash—a few drops—until it forms a slight brown cloudiness which does not re-dissolve; we know then that the bath is not acid, but that it is possibly alkaline—just alkaline. When in that alkaline condition, it throws down impurities which, whilst in the acid condition, would remain in it. Then add a solution of iodide of potassium, a few drops at a time, until no more of the deposit re-dissolves. Now fill up with the remaining two-thirds of water at once. A quantity of iodide of silver will be deposited, and in settling down it appears to carry down impurities with it.

Make your bath, so far, some time beforehand, and leave it until you really want it; then filter it, and add to every pint one drop of nitric acid; the bath should then be in good condition and fit for use. When a bath is not in good condition, the result is that, where the shadows should be perfectly clear, no deposit at all, there is a certain amount of deposit, sometimes so bad as to cause a fog, that spoils the picture entirely.

An upright glass dipping-bath is customary, with a dipper to hold the plate. It is very convenient to have a millboard cover made for the bath, and the dipper, which may be of gutta percha, attached, so that when the dipper is inserted the lid comes down, and when the lid is removed the dipper and plate are withdrawn.

The plate being properly cleaned, as before explained, is now coated with the collodion. In coating the plate, number the corners in your mind 1, 2, 3, 4. Hold the plate by the thumb and fingers of the left hand as near the corner of No. 3 as possible. Pour on plenty of collodion, so as to be sure it will go all over; run it first into corner No. 1, which is opposite the thumb, then 2 and 3, which is the thumb corner, and off into the bottle again at No. 4. Now, if the plate is left still, it will form marks; so keep the plate in one plane, but raise alternately the corner next the thumb and the opposite corner, so as to alter the direction of the running-off lines crossing them, and thus get rid of lines altogether, or nearly so. Large plates are best coated with a pneumatic holder, or by supporting them on a pad of paper with the hand flat underneath. After coating, the plate must be left a short time to set; it must not be placed in the silver bath instantly. The time depends upon the time of year, the quality of the collodion, &c.; if any part is perfectly dry, it will give a thin, useless image, and will ruck up in developing; if it has not set sufficiently, the edge where it has been poured off will show streaks coming dow from it. In placing the coated plate into the sensitising bath, it must go in without a halt, or there will be a line; it must not be hastily put in so as to cause a splash, or there will be marks where the splashes settle, but it must be put in evenly and quietly.

The plate should remain in the sensitising bath for an average of three minutes. If, on taking the plate out of the bath, it shows greasy-looking marks, it has not been in the bath long enough, and must be put back. On removing it from the bath, it should be drained for a minute or so to get rid of the surface moisture, and it is then ready for the exposure, which, whether the plate is intended for a negative or positive, must be made in the camera, as the wet plate, coming in contact with a negative film, would ruin it at once. The wet-collodion plates are some thirty or forty times slower than an ordinary gelatine plate.

The developer consists of—

Sulphate of iron	10 to 20 grains
Acetic acid...	15 minims
Water	1 ounce

I use no alcohol with a fresh bath, and, on the whole, I find I get clearer pictures without; but, if the bath has had many plates dipped in it, you will be compelled to use alcohol in your developer, otherwise it will not flow smoothly, but will halt and make marks. After washing off the developer, cyanide of potassium is used as the fixing agent, of which a little may be poured on the plate, but I much prefer a dipping bath where many plates have to be fixed. It is much quicker to use than hypo, and is easier to wash out.

If the plate needs intensification, it can be done in several ways, but the usual intensifier is—

Pyro	2 grains
Acetic acid	15 minims
Water	1 ounce

Flow this over the negative and back into the measure, then drop into the measure three or four drops of the sensitising solution. That which has drained from the plates, if it has been saved, will do very well. Pour it back on to the negative, and it will at once give a brown colour, and, by degrees, deepen to perhaps twice the intensity the plate originally had.

Suppose you find that your picture is slightly marked from a dirty glass, and you expect that the film will fly off when dry, but, on the whole, it is so good that you would like to save it, in that case, while it is still wet, flow over it some rather thin gum water, and then it will probably stick to the glass as it dries.

A collodion negative must be varnished, as the film is so tender that it cannot safely be printed from without this precaution. Any of the negative varnishes on the market will do for this.

There is not so much latitude of exposure with the wet plate as with the dry gelatine plates, as the developer cannot be modified to the same extent. The wet-collodion process is cheap to work, the chemicals for a half-plate only costing somewhere near a halfpenny. In case of a negative being spoiled, the film may be cleaned off easily, and the plate is then available for use again. If the plate has been varnished, hot water will loosen the film.—*North Middlesex Photographic Society.*

THE RECENT SOLAR ECLIPSE.

BY CAPTAIN E. H. HILLS, R.E.*

PHOTOGRAPHIC methods play such an important part in modern eclipse observations that no excuse is needed for bringing the subject before this Society.

The more general question of astronomical photography has been ably dealt with by many writers, and I shall not encroach upon it here. There are many points that mark off eclipse work as quite distinct from any other branch.

There is, first, the necessary shortness of exposure, an eclipse never lasting much more than seven minutes, and generally under three. The maximum duration of the one of April last was nearly five minutes, and the eclipse of the shortest duration that has been successfully observed in recent times was the one of 1882, of which the totality was only seventy seconds. But so great is the gain of replacing eye by photographic observations, that I think it may be fairly said that if there were to occur an eclipse with a duration of totality of only ten seconds, it would be amply worth while sending an expedition many thousand miles to observe it.

There is one reason indeed why an eclipse with a very short totality would be most interesting to observe, and that is for the purpose of gaining information about those regions which lie close to the body of the sun, and which are completely covered up during an ordinary totality, except during the first and last second or two. In a very short eclipse these regions would be much more exposed, and we might gain valuable information as to the so-called "reversing layer" about which eye observations are in total conflict, and which wait now the decision of the photographic plate.

The next point about eclipse observations is the absence of choice of locality, the average breadth of the shadow being about seventy miles, and being generally for the greater part of its length over the open sea, in addition to which, when we consider the fact that the observing station ought to be as near as possible to the central line—certainly not more than ten miles from it—we see that the choice of situation is not large. Where there is any choice, we should try for a high altitude, it being there where a clear atmosphere with absence of moisture is found. It by no means follows that in a place where we are certain of fine weather we are also certain of getting good observations. What I mean to say is, that in those places where the weather is continuously fine, there is also a large amount of dust and haze continuously present, which greatly interferes with the more delicate observations.

I believe that Dr. Common has found in his photography of nebulæ that intervals between clouds give the best chance of obtaining good results, and this same thing was exemplified in the eclipse of April last.

Of the two British expeditions the one which went to Africa was practically certain of fine weather, while that which went to Brazil was almost equally certain of wet weather, so much so that the expediency of sending it at all was very much doubted. As the event turned out both stations had good views of the phenomenon; but in Africa there was a considerable amount of haze present; whereas in Brazil, where the sun was seen between two clouds, the air is described as having been remarkably clear. Absence of moisture is, however, of great importance, as, if there be any considerable amount present, there is great chance that the actual drop of temperature during the eclipse may cause a precipitation—as happened at Granada in 1886.

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* Read before the Photographic Congress.

We therefore come back to the fact that a high altitude is the ideal situation for an eclipse observatory, such as was occupied by the American observers in April last, on the high grounds of Chili.

We now come to the question of instruments, which theoretically ought to exhibit in a high degree the qualities of portability and simplicity. As regards portability we must place rather a liberal interpretation on this word. Anyone who has done any instrumental work of any kind knows how hopeless it is to try to work with light instruments on insecure foundations; more especially is this the case where they have to be specially adjusted and time is of great importance.

We took with us to Africa bags of Portland cement with which to make concrete bases, and this is certainly well worth doing in similar cases. The French observers in Africa, I may mention, placed their instruments upon brick pillars, which is in some ways an advantage, as it enables one to leave the heaviest part of the mounting behind; but of course they require time to build, whereas a concrete base can be put in one day and will be hard enough to work upon the next.

In considering the subject of instruments we are at once confronted with the question of refraction *versus* reflection—that is to say, whether we shall mount our instrument, be it spectroscope, camera, or telescope, upon an equatorial mounting, or whether we shall fix it in a horizontal position and reflect the light into it by means of a siderostat.

There are advantages claimed for both systems; on the one hand we have in favour of the equatorial, first, that the maximum amount of light gets into the instrument, and secondly, the driving motion is simpler and therefore less liable to go wrong—being a rotation round an axis instead of a combined rotation and sliding motion. On the other hand, we have in favour of reflection the smaller bulk and consequently the increased portability of the instrument, and the fact that as the telescopes, &c., are mounted horizontally and have not to move, they can be very firmly fixed in position, and require little head-room, so that if necessary they could be placed in a building. This might be of importance in a very cold climate; as for instance, in the case of the next eclipse of August, 1896, which will be observable in Lapland and Nova Zembla.

There is a modification of the siderostat which seems to be, on the whole, best for eclipse work, and that is what is known as the polar siderostat. This instrument throws its beam of light towards the pole; for a low latitude, therefore, where the elevation of the pole is small, it is particularly convenient.

The latitude of Fundium was 14° 30′, and the French observers there had a good example of this class of instrument—(slide).

In high latitudes it would of course be impossible to arrange the instruments in this way, and it becomes necessary to have a second mirror to throw the beam in a horizontal direction. This involves some loss of light, but not an important quantity. This loss can be compensated for by an increase in size of the telescope or camera lens, which, as a mere question of money (to which after all everything reduces itself), would be amply paid for by the saving in other ways—the polar siderostat being a comparatively cheap instrument to construct.

When we have many instruments to supply with light we can either have one large siderostat or several small ones—in the latter case they need not all have separate clocks; but the adjustments would certainly take longer, and it would probably be better to have as few instruments to adjust as possible, and have therefore our siderostat mirrors as large as possible.

You will all readily appreciate what an immense advantage it is on this system to have all the photographic cameras mounted separately on fixed mountings, whereas on the equatorial system they have to be carried round with the motion of the instrument.

We are always confronted by the dilemma as to how many instruments it is advisable to have on one mounting, and as an example of the different conclusions to which astronomers have come on this subject, I may mention that our expedition to Africa had four equatorial mountings—two of which had two instruments and two only one—whereas the party of American astronomers which went to Africa in 1886 were provided with an instrument which had no less than twenty-seven cameras on one mounting, operated by playing on a sort of keyboard which controlled the electric shutters. Clouds unfortunately prevented this ingenious instrument being used, and I have not heard that it took part in the operations of this year.

We must now leave the more general questions and confine ourselves to our special subject—namely, the eclipse of April last.

Of the four instruments employed by the British observers, three were arranged for photographic methods and one for visual work—this was the photometer.

The first instrument I take is the photo-heliograph or coronograph, for taking the direct photographs of the corona, of which identical instruments were stationed in Africa and Brazil—it being one of the special points of this last eclipse to compare the appearance of the corona as seen in Brazil and Africa, and to determine if there occurred any change in the hour and a half interval of time which separated the phenomenon as seen at the two stations.

(*To be continued.*)

The Leytonstone Camera Club opens its Exhibition on Monday next, at the Masonic Hall, Leytonstone. The judges are Mr. Cembrano, Col. Gale, and the Rev. F. C. Lambert.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, NOVEMBER 17, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

The Photographic News.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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A GAS CYLINDER EXPLOSION.

THE explosion which took place last week at Bradford will naturally fill the minds of many with alarm. Upon another page we publish all that up to the present time appears to be known about the melancholy occurrence. It was not a gas explosion, but can with greater propriety be placed in the same category as a boiler explosion, for it was due, not to ignition, but to pressure. All that is as yet known is that a lad in the employment of Messrs. Riley, opticians, of Bradford, was carrying a couple of 20 ft. gas cylinders, when one of them—containing oxygen—burst with a tremendous report, and inflicted such awful injuries on the poor boy that he was instantaneously killed. It is stated that the cylinder was of cast-iron, and that it was charged to a pressure of 1,200 lbs. to the square inch; but the one statement refutes the other, for no cast-iron receptacle would or could be charged to such a pressure. We may, therefore, take it for granted that the cylinder which burst was of mild steel, and of the same pattern which is used by lantern workers all the world over in preference to the old-fashioned gas-bags.

Hitherto such has been the confidence felt in the safety of gas cylinders that they have been carried by road and rail, and submitted to the rough handling which such transport necessarily involves without any thought or question of danger. And that this confidence was fully justified would seem evident from the tests to which such cylinders have been submitted. So long ago as March, 1890, some experiments were conducted at Stevenstown, near Glasgow, with a view to determine how much rough usage a fully-charged gas cylinder would withstand without bursting. Three cylinders were subjected to these tests, all being of the lap-welded pattern, and therefore not quite as strong as the more modern type of solid-drawn cylinder. Two were fully charged with oxygen, the indicated pressure being eighteen hundred pounds on the square inch, and the remaining one held liquid carbon dioxide. The external diameter of each cylinder was 5½ inches, and the thickness of the metal was a quarter of an inch. Now, let us see to what rough treatment these heavily charged gas receptacles were subjected.

No. 1 cylinder was twice dropped from a height of thirty-five feet upon an iron block twelve inches square, each blow thus received bending the cylinder about three-quarters of an inch. The same cylinder was next dropped endways upon the iron block from a height of thirty-one feet, the impact causing a slight flattening of about the diameter of a penny piece. Next the same cylinder was laid across an iron block and crushed with a fifteen-ton blow, and finally, while its ends were supported on two anvils four feet apart, a similar blow bent it into an arched form. No. 2 cylinder was dropped five times from a height of thirty-five feet across an anvil, each blow coming on the same spot; and No. 3 was submitted to much the same violent treatment. These cylinders not only did not rupture under such treatment, but, when tested, were found to hold the original amount of gas, and to be perfectly sound in every way. Visitors to the Photographic Convention meeting at Edinburgh last year will remember that cylinders which had been submitted to these, or similar, experiments were shown in the exhibition room. In addition to the sense of security which such experiments beget, we have the added knowledge that the cylinders are originally tested to double the pressure which they will be called upon to bear, and that examination of cylinders which have from time to time been sawn asunder show that there is little or no abnormal oxidation of the metal.*

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* An exhaustive article on the strength of steel gas cylinders, by the engineer and manager of Brins' Oxygen Company, will be found in the "YEAR BOOK OF PHOTOGRAPHY" for 1893.

We are, therefore, face to face with the extraordinary circumstance that one of these strongly girt gas containers—which will withstand the fifteen-ton blow of a steam hammer, and will survive repeated falls upon a block of iron from a height of thirty-five feet—bursts when being carried in a boy's arms. It is assumed that the unfortunate lad dropped the cylinder, but from the fact that the terrible injuries which he suffered involved the head, chest, and arms, and not the legs, we should think it more likely that the cylinder burst while in his hands.

We trust that the adjourned inquest, which will be held this day at Bradford, will be of the most searching character. Unfortunately, in nearly all disasters brought about by explosion, the material from which valuable evidence might be forthcoming is destroyed. The collected pieces of the cylinder will, at any rate, show whether the metal was flawed, or whether it had sustained undue oxidation. The coroner will also, no doubt, insist that the history of the cylinder be traced, so that, if possible, a cause for the alarming disaster may be found, and the fears engendered by it may be allayed. The sensible remarks made by him at the opening of the inquest convince us that the inquiry is in very good hands.

EXHIBITION IN SOUTH LONDON.

THE South London Photographic Society's fifth annual exhibition, which was opened on Tuesday, November 7th, was a decided improvement on the last, and contained a large number of really good photographs. Over three hundred pictures were exhibited, of which the majority were contributed by members of this prosperous society. The judges were Messrs. F. P. Cembrano, Leon Warnerke, and W. E. Debenham, who seem to have taken great pains in the bestowal of medals.

Class A, for members only, comprised portraiture and figure studies and animals, and contained much creditable work. Mr. Howard Esler received a bronze medal for his picture, "Peaceful Old Age," and Mr. W. E. Harman took another for some effective country scenes. Class B (Architecture) was a very strong one, and contained a great deal of fine work; the interior views were especially good. "Across the Octagon, Ely," won a medal for Mr. H. E. Farmer, while similar awards fell to Messrs. W. Howell and E. R. Bull for the "Choir of Rochester Cathedral" and "The Tomb of Edward the Black Prince" respectively. In Class C (Land and Seascapes) a silver medal was well deserved by Mr. G. H. Cricks' picture of an "Essex Swamp," one of several fine examples of this artist's work. Entries in this class were restricted to pictures larger than half-plate, the smaller ones being reserved for Class D. A large number of views found their way to this section, which, for all that, was one of the weakest in the exhibition; Miss Smyth and Mr. W. F. Slater carried off the silver and bronze medals respectively. Class E consisted of enlargements, some of which were extremely good, notably some fine animal studies by Mr. Dickenson. No awards, however, were made by the judges. In Class F (Lantern Slides) Mr. Dickenson took a silver medal.

We now come to the open classes, of which there were four. In Class G (pictures which had previously received awards) we recognised many old friends. Mr. J. B. B. Wellington's "Eventide" again won him a silver medal, while Mr. Oakden took the bronze for his "North Aisle, Ely Cathedral," and also, very deservedly, the "general excellence" medal.

In Class H (pictures not previously medalled) a large number of very fine photographs were entered. Mr. Byrne took both silver and bronze medals for two portrait studies, while Mr. Tagliafero won a bronze medal for his picture, entitled "A Humble Offering," a Continental scene—a girl making an offering of flowers to a statue of the Virgin. Some good portraiture by Mr. Hemery yachting studies by Messrs. Charles Sweet and West, and some fine work by Messrs. Terras, Golledge, Warncuke, Dresser, Bullen, and many other good workers, went to make up by far the strongest class in the show. Class J (lantern slides which had previously received awards): Mr. G. E. Thompson took the silver, and Mr. W. Taverner the bronze medal, while in Class K, for slides not previously medalled, the silver medal went to Mr. G. Hankins and the bronze to Mr. T. H. Gear.

This capital exhibition remained open until Saturday last, and was held in the Peckham Public Hall. The Committee are to be congratulated upon the very satisfactory way in which the pictures were hung and lighted, and upon the excellence of the arrangements generally. Each evening was enlivened by music, followed by an exhibition of the medalled and other lantern slides, and the hall was on every occasion attended by a large number of visitors. In the Apparatus section Messrs. Parke, chemists, of Brixton, Clapham, and Peckham, had a large stand of photographic chemicals and apparatus. The Prosser-Roberts Co. also exhibited many things of photographic interest, including a photo-micrographic system and a portable dark room. Mr. William Slater's show of picture-frame mouldings, &c., attracted attention, as did also Messrs. Howell & Sons' interesting show of apparatus. Mr. T. H. Powell, of "developoid" fame, was also well represented.

Society of Arts.—The new Session of the Society of Arts commenced on Wednesday last, when the opening address was delivered by Sir Richard E. Webster, Q.C., M.P., Chairman of the Council. For the subsequent Wednesday evenings before Christmas, the following arrangements have been made:—November 22nd, "Conformation of the Horse, from the Artistic Point of View," by Capt. M. H. Hayes." November 29th, "The Regulation of Street Advertising," by Mr. Richardson Evans. December 6th, "An Artist's View of Chicago and the World's Fair," by Mr. Frederic Villiers. December 13th, "Carriage-way Pavements for Large Cities," by Mr. Lewis H. Isaacs. Mr. Henry Blackburn will deliver a course of Cantor lectures on "The Art of Book and Newspaper Illustration," on Monday evenings, November 27th, December 4th and 11th.

GAS CYLINDER EXPLOSION AT BRADFORD.

A SHOCKING accident happened yesterday evening to a boy named John William Fuller, aged fourteen years, of 65, Arthington Street, Whetley Hill, Bradford, who was in the employ of Messrs. Riley Brothers, magic-lantern outfitters, of Cheapside, Bradford. A little before six o'clock in the evening the boy was sent out, in company with a man, to take some material for a magic-lantern exhibition at the Victoria Hall, Queensbury, to the Exchange Station. When they got to the station the man went to take tickets, and the boy commenced to take some material out of the handcart in which it had been brought to the station. It is clear that the boy overweighted himself. He put on to his left shoulder a twenty cubic feet cast-iron oxygen cylinder, and dragged with his right hand a twenty-feet hydrogen cylinder. When he got into the passage leading from Drake Street to the Exchange Station, for some reason he lost control of the cylinders. Accounts differ as to the precise details of the occurrence, but the cylinder containing oxygen was dropped by the boy, and it burst with a loud explosion, the noise of which was heard for a considerable distance. The lights in the passage were all extinguished. A man named Joseph Gledstone, of Town Lane, Idle, who was a few yards behind the boy, was struck by a number of pieces of the cylinder, and his right hand was cut; and another passenger, Samuel Tempest, of Laburnum House, Eccleshill, who was slightly farther away, was blown against the wall. Mr. Gledstone at once ran for a policeman, and when Fuller was reached it was found that he had been killed instantaneously, his head having been severed from his body, except that the skin at the back was intact. The body of the unfortunate boy was removed on a stretcher by railway officials to the mortuary. Messrs. Riley Brothers state that the gas which was contained in the cylinders was not in itself considered to be an explosive, and though it was put in at a pressure of 1,200 lb. per square inch, the cast-iron cases had previously been tested up to a pressure of two tons. The cylinder containing hydrogen was found intact lying by the side of the boy.

Opening of the Inquest.

The Bradford Borough coroner (Mr. J. G. Hutchinson) opened at the Town Hall, Bradford, yesterday, the inquest on the body of the boy, John William Fuller, of 65, Arthington Street, Bradford, who was killed on Wednesday by the bursting, at the Exchange Railway Station, of a cylinder of compressed oxygen, intended to be used for an oxy-hydrogen magic-lantern. Mr. James Freeman attended on behalf of the relatives of the deceased; Mr. Morgan was for Messrs. Riley Brothers, lantern outfitters, of Cheapside, Bradford, the employers of the lad; and Mr. T. Carr-Jackson, of King's Cross, London, and Mr. Hunt, of Manchester, appeared for the Great Northern and Lancashire and Yorkshire Railway Companies respectively. Superintendent Paul watched the case on behalf of the police.

On the opening of the inquiry Mr. Morgan asked to be allowed to express the deep regret which was felt by Messrs. Riley Brothers at the very sad occurrence which was the subject of investigation, and to assure the Court that anything that they could do to assist in the inquiry, or any information they might possess, was entirely at the disposal of the Court.

Superintendent Paul asked if it was necessary for him to produce the fragments of the cylinder which had burst.

The Coroner said that at present it was not necessary. It had been suggested to him by a gentleman connected with the Yorkshire College at Leeds that if a duplicate of the broken cylinder were obtainable it might be well to submit it to examination.

Mr. Morgan said his clients had one cylinder which was supposed to be a duplicate of the broken one. Both were delivered to them at the same time by the firm who filled them with oxygen. The sound one was entirely at the coroner's service, and might be submitted to any process which would assist the inquiry.

The Coroner intimated that he intended at that sitting to proceed no further than the identification of the body, so that it might be interred: and he should then adjourn the inquiry until Friday next. A communication of the facts of the case had been made to the Home Office. He was required by statute to give certain notices, and he should adjourn the inquest for that purpose. He could not lose sight of the fact that the occurrence raised a most important question, for he was informed that the railway companies had been accustomed to receive these cylinders of compressed gas without a thought that there was the slightest danger in connection with them. It was, therefore, very desirable to go to the very bottom of this matter during the inquiry, and ascertain all the facts which possibly could be gathered. He was glad that the railway companies were represented, because that gave an opportunity of ascertaining what had really been their practice.

Robert Fuller, shoemaker, 65, Arthington Street, Bradford, father of the deceased, then gave evidence. He said deceased was fourteen years of age, and had been employed by Messrs. Riley Brothers for slightly over a fortnight. Before he went to work at their establishment, however, he had been in contact with cylinders such as that in question. Witness had been the caretaker of some schools and chapels where lanterns had been in constant use, and some of the cylinders which the deceased had seen there had been supplied by Messrs. Riley Brothers. Witness last saw deceased alive on Wednesday morning, and on Thursday was shown his dead body at the mortuary.

Mr. Morgan asked for inspection of the fragments of the cylinder. It appeared, he said, from testimony which he had received from the firm who filled the cylinder to be of the utmost importance that the fragments should be minutely examined before the atmosphere had time to affect the broken edges, so that it might more readily be seen whether there had been any old fracture or defect either in workmanship or material.

Mr. Freeman thought it would be advisable that some independent gentleman should inspect the fragments on behalf of the Court. His clients were, unhappily, not in circumstances which enabled them to call in the assistance of any scientific gentleman.

The Coroner said he thought Mr. Morgan's application was a reasonable one, and one in which possibly there might be a little urgency. He did not know what course the Home Office would follow, but he would appoint someone to examine the fragments in company with Messrs. Riley's expert. Mr. Herbert Morley, of Messrs. Cole, Marchent, & Morley, engineers, of Bradford, would so act, and Mr. Goodman, professor of engineering at the Yorkshire College, would also examine the fragments.

Mr. Morgan said he found on inquiry that his clients had only one duplicate of the broken cylinder, which was delivered at the same time, and this happened to be without its valve. He mentioned this that it might not be matter for comment that no complete duplicate was forthcoming.

It was arranged that the duplicate should be handed to Superintendent Paul, who had charge both of the broken cylinder and of the second, which the lad was carrying, but which remained unbroken.

The inquest was then adjourned till Friday next, at ten o'clock.—*Bradford Observer.*

SOME LANTERN NOTIONS.

THE lantern season is upon us, and, judging from the various signs of the times, it should prove an exciting one. On the one hand, we find the makers of optical instruments vieing with one another in the production of small and ingenious lanterns, designed to supersede the more cumbersome form which has been, with but little variation, the model for all optical lanterns since the birth of the instrument in Toy-land. On the other hand, clever inventors in many different countries have suddenly, and almost simultaneously, startled the world with marvellous scientific devices for deceiving the eye and astonishing the soul of the uninitiated. Thus, from America, we have the heliochromoscope, invented by Mr. Ives, by which lantern pictures are shown having all the colours of the original vividly reproduced by the clever blending of three images taken through coloured screens, and illuminated by coloured light from a triple lantern. Then there is the long-talked-of Lippmann system of photography, which, although disappointing at first view, becomes endowed with brilliant colouring when projected by means of a special lantern on a screen.

The kinetigraph is forcing itself upon the notice of lanternists. Here we have the old-fashioned zootrope, or wheel of life, used in conjunction with the lantern, and showing life and movement on the screen; while last, but not least, comes Mr. Anderton, with an ingenious arrangement, by which the dream of all who have witnessed a lantern show since the advent of the stereoscope is realised, with, however, the trifling difficulty that all who would peer into the depths—we use this word advisedly—of the beautiful scenes cast upon the silver-faced sheet must don a pair of special spectacles!

There are obvious difficulties in the practical employment of many of these ingenious devices. But let us suppose all obstacles to their employment wiped away, what a marvellous field opens up before the mind's eye of even the least imaginative! It is easy to believe that all these wonderful inventions might be combined to produce such a dioramic entertainment as has never before been dreamed of, and we shall have lectures illustrated by means of the "Marvellous New Edison-Ives-Anderton Photo-Chromo-Helio-Stereo-Kinetiopticon," and it will sorely tax the flowery vocabulary of the most versatile speaker to find words to describe the results obtained thereby. What a perfect battery of lenses would be pointed towards the sheet, and what a curious spectacle the auditorium would present to the eyes of the long-suffering lecturer! There would be the three tubes of the heliochromoscope, belching forth their red, blue, and green rays. Underneath this would be a similar set, to meet the requirements of stereoscopic projection. Alongside, or above, this combination would be reared the "wheel of life" to give movement to the scene, while the whole wonderful erection would have to be duplicated in facsimile, in order to render possible the dissolving views, without which, in spite of many assertions to the contrary, few popular audiences are satisfied.

DETECTED BY PHOTOGRAPHY.

THE wonderful progress made in the art of photography, and its great possibilities in the future, were shown by the testimony of Mr. Spencer, the photographic expert of Washington C. H., in the United States Court the other day. The case was the famous Stubblefield-Munford controversy, which has been dragging through the courts of Fayette County for years. The litigation involves 1,500 acres of the finest farming land in Fayette County.

During Monroe's administration, this tract was willed by one of the old Munfords to his five heirs, and the present suit was brought on the deed of sale signed by them. The Munford heirs deeded the land to Stubblefield, who afterwards sold parts of it to different parties, who have had to pay twice for their land by decision of court.

The case the other day was an appeal asking a new trial in order that new evidence may be introduced. The new testimony is the photograph of the original deed of sale made by Mr. Spencer. All previous decisions have been made in favour of the Munford heirs on the ground that Anna Munford, one of the original five heirs, had never signed the deed to the Stubblefields.

The deed of sale, discoloured and yellow with age, was taken to Mr. Spencer by the attorneys for the defendants

The closest examination failed to disclose any evidence of more than four signatures, and only the fact that the space for the fifth remained caused the attorneys to think that it had once existed.

Under the closest watch of the Clerk of the Court, who could not allow the original to leave his hands, Mr. Spencer photographed the deeds. On the plate he saw traces of the signature, and, on enlarging the negative ten times, the entire name was as plainly seen as when first written. The presiding judge was much interested in Mr. Spencer's evidence, and left the bench that he might more closely examine the negatives.

This undesirable evidence will doubtless give the land to its rightful owners, and take from the courts one of the most interesting cases in history.

Mr. Spencer is a native of England, and learned his art in that country. His father was an expert photographer, whose office was to photograph the important documents in the British Museum, and in this work his boy learned to love his art, and realise its importance in preserving old and important records. Mr. Spencer is a bright, captivating talker, and tells of many cases that he has been instrumental in clearing up. In the famous Two-Five case, on which a prominent attorney of Washington was convicted of raising the figures, and disbarred from practice, his negatives showed the forgery. The lawyer in question was connected in a legal capacity with a paternity case, which was compromised by paying $2,000 to the young lady. After getting the lady's signature, he raised the cheque from $2,000 to $5,000, and that amount was paid without demur. Afterwards suspicion was attached to the transaction, and an enlarged photograph of the document showed plainly the difference of ink where the "T" was changed to an "F," and the lines of the original "o" were changed to "e." On this evidence the attorney was prosecuted. The lawyer afterwards assaulted Mr. Spencer, accusing him of making the changes by the aid of acids; but the fallacy of this was shown by examination of the negatives.

Mr. Spencer talks interestingly on the change of the form of letters in the past century. Almost the entire alphabet has been transformed, mostly with a view of simplification.—*Cincinnati Tribune.*

CORRESPONDENCE.

DEVELOPMENT OF GELATINO-BROMIDE PAPER.

SIR,—In reply to Mr. Wilson's letter to you regarding my publication of the Paget method of developing printing-out papers. I hasten to set right the evident misunderstanding.

At the same time, the matter was divulged to me as I was making experiments in the same line myself, and had already succeeded, by a preliminary conversion of the free silver into chloride and iodide, using the Paget lantern plate developer.

I was then informed of the method devised by Mr. Wilson, using bromide of potassium. This I found superior to my own method; but was asked not to divulge same, nor have I ever done so until the publication of Mr. Wilson's method in a recent issue of your magazine, when I immediately wrote an article on the subject which appears in the issue of the *Photographic Times* now in press. I send you an advanced proof herewith, and you will see that I give the fullest credit to both Mr. Wilson and the Paget Prize Co.

In the formula I gave in the *Photographic Times*, and to which Mr. Wilson refers as iodide, is used a similar process I tried nearly eight years ago, the only difference being that I substituted the Paget lantern plate developer for an old ferrous oxalate one. I am willing to give every credit to the Paget Co. for the perfection of a simple and effective method of development, far superior to anything else I know.

WALTER E. WOODBURY.

New York, October 28th, 1893.

APPARATUS.

IN spite of the extended use of the limelight for lantern purposes—owing principally to the introduction of compressed oxygen as an article of commerce—there is still an immense demand for oil-lit lanterns, both for domestic use and for the purpose of enlarging photographs. Any improvement in these convenient instruments is, therefore, a matter of general interest. We may assume that, in its general features, and in its optical arrangements, the oil lantern has reached the highest point of efficiency, and, in saying this, it must be understood that we by no means include all the lanterns upon the market. It is in the illuminating power of the lamp employed that improvement may naturally be looked for, hitherto the best oil lamp being far less efficient than the humblest form of limelight. Messrs. Newton have just brought out a lamp for lantern use called the "Newtonian," which is a distinct improvement upon previous efforts in this direction. This lamp, Messrs. Newton inform us, is the result of a long series of experiments, which have dealt more particularly with regulation of draught—governed by length of chimney—and careful calculation of relations of different parts to one another, with a view to gain the highest efficiency. As a result of these experiments, the chimney is adjusted to one height, the reflector has a fixed distance from the quadruple flame, and other improved features have been introduced. The Newtonian will burn "crystal" or any mineral oil, and

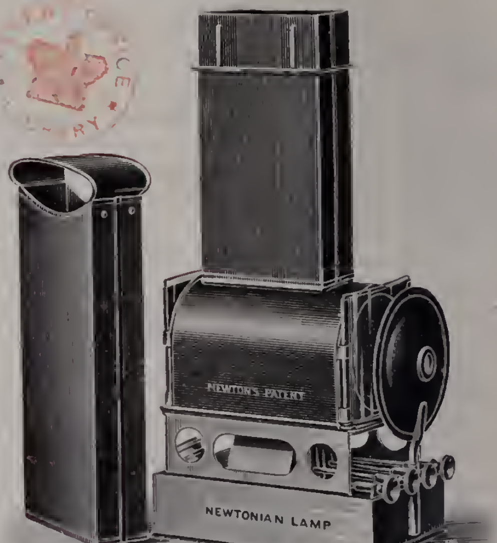

FIG. 1.

is declared to be "the most powerful and simple lamp yet constructed." It is here figured.

Messrs. Newton have inaugurated the commencement of the lantern season by another new departure, in the shape of the "Demonstrator's" optical lantern. In this instrument we have a veritable *multum in parvo*, for, while it will do the work of an ordinary exhibition instrument, it will also meet the wants of the science lecturer or schoolroom demonstrator. Its general form has been suggested by one of these workers, Mr. H. Jackson, of King's College, and we may, therefore, regard it as the outcome of practical knowledge of the kind of apparatus required by teachers. It has 4½ in. condensers, achromatic front lens, while the focussing is carried out by a milled head attached to a bar, which extends horizontally from the front of the lantern. It will be readily seen from the illustration that the instrument fulfils several offices; it can be used as a direct projection lantern, for the exhibition of any kind of electrical and chemical apparatus, and for projection of objects which, by their nature, must be kept in a horizontal position—such as, for instance, the lines of magnetic force as shown by scattered steel filings. The following extract from Messrs. Newton's supplementary list just published explains the ingenious application of the prism to the lantern :—

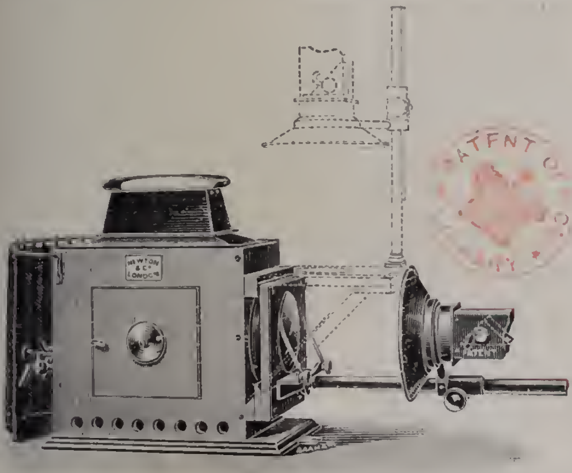

Fig. 2.

"When projecting thermometers, capillary tubes, gold leaf electroscopes, &c., with an ordinary lantern, the effect is entirely spoilt by the inversion of the image on the screen, and the cost of an erecting prism often prevents its employment. This expense is saved in the 'Demonstrator's' lantern, *by employing the same prism to erect these objects that is used as a reflector for vertical projection*, in which capacity it gives a far more perfect image than a mirror. This prism should be placed in the upper bearing in the position shown in the figure when required for erecting, and in the lower bearing in the position shown in the dotted lines, when used as a reflector for vertical work.

"The lantern is so constructed that, after the jet has once been centred for direct projection, it requires no further adjustment when the erecting prism is used, or when changed from horizontal to vertical position.

"For vertical projections it is simply necessary to raise the front portion of the condenser, which is hinged at the top, and to slide a mirror into its place underneath. Then shift the prism into the lower bearings, as shown in Fig. 2, and a clear brilliant disc of light, the full field of the 4½ in. condenser, will be thrown on the screen. If a smoked glass be now laid on the condenser it can be readily written or drawn upon by a point, and the writing or diagram appears the right way up on the screen (while it is being done), very brilliantly shown in white on a black ground, without any secondary image being visible."

Messrs. Hughes' patent automatic incandescent limelight shutters are introduced in Fig. 3. The object of these shutters, the movement of which is controlled by the dissolving tap, is to screen the lime cylinder from the lens when the gases are shut off. All limelight-workers with a double lantern know how the glare from the incandescent lime, after the gases have been turned off, will persist and make itself evident on the sheet, to the prejudice of the pictures being shown by the other optical system. These shutters at once correct this evil, and save the operator the trouble of capping the lens, which otherwise he is bound to do if he require the best results. Mr. Hughes is also fitting to his jets an asbestos shield, which is placed behind the lime cylinder to prevent any escape of light at the back of the lantern.

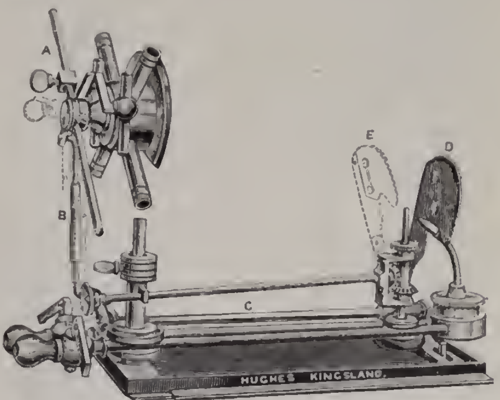

Fig. 3.

Although hand cameras meet us on every side as if determined to assert themselves, the tourist photographer cannot do without a trusty tripod-stand. Hand-camera work may be possible and profitable for a time, but suddenly some subject presents itself which must have a time exposure or none at all, and the experienced man is so well aware of this that he makes a point of carrying with him a light tripod-stand. The "Automatic" is one which is offered to the public by the Thornton-Pickard Manufacturing Company, and, from a very careful examination of it, we are able to say that it embodies a number of excellent features.

In the first place it is light, rigid, and, when closed and folded up for transport, is very compact. Its most notable advantage, however, is indicated by its title "Automatic," which refers to the method by which each joint locks itself as the stand is extended to its full height. Reference to the annexed figure of the complete stand, Fig. 5, will show that the lower section of each leg slides so as to be adjust-

Fig. 4.

able in height and to afford accommodation on uneven ground. On pulling out this section to the fullest extent, a little spring-bolt—marked by the arrow in Fig. 6—asserts itself, and the section cannot be returned to its former position until this bolt is depressed with the thumb. A thumb-screw provides for adjusting the section at intermediate heights. On much the same principle the upper joint of the stand is locked, as shown in Fig. 6, a similar bolt snapping into position against the bar A (see Fig. 7). The stand is completed by a neat form of head made of polished mahogany—with a ring of cloth to obviate all chance of scratching the camera.

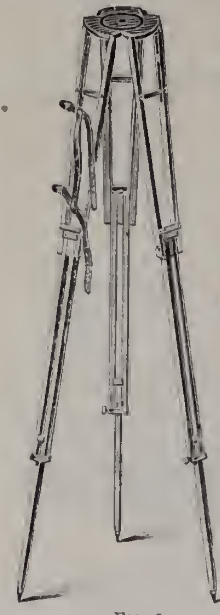

Fig. 5.

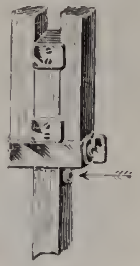

Fig. 6.

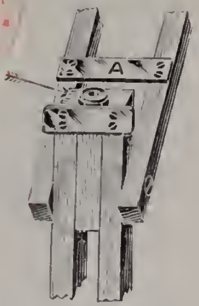

Fig 7.

ENT OFFICE

* * *

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

November 2nd.—Mr. A. Mackie in the Chair.

Mr. H. S. Fry gave a demonstration of the process of developing, and toning, on the Paget Company's printing-out paper, images which had received only a short exposure to light. Prints which had received exposures of from a tenth to a fifth of the time that would have been required for printing-out were immersed, in the first place, in a 3 per cent. solution of bromide of ammonium. Two minutes in this solution is necessary, but longer time may be given, and, indeed, is desirable, to ensure complete conversion of the unreduced silver. If the time or the strength of the bromide has been insufficient, the prints will show a brownish stain, which is most evident on the back of the paper. The prints are next washed, so as not to carry over into the developer a quantity of bromide that would modify its action to an uncertain extent. The developer itself contains a large amount of carbonate of ammonia, by means of which a red image is secured, suitable for toning. The prints must not be developed at all too long. A slight allowance may be made for a little continuation of the developing action whilst in the water before the developer itself is completely washed out, and the image gains much in strength by toning. The toning is exactly similar to that of prints made in the usual way, without development. In ordinary printing the exact depth of the print must be decided whilst in the printing frame. In this process the crucial point is reserved for the development, as a print may be made of any depth, from one-tenth up to almost full exposure in the ordinary way, and the prints stopped; each at the proper stage of development are quite indistinguishable. Paper for development should have a very thin coating of gelatine, as this substance retards the action of developing, and especially of toning, much more than does albumen. The depth of printing is immaterial, except as regards the necessity for using great precautions against any momentary exposure to white light, and the use of such a light as a naked gas flame during manipulation. If the exposure is very short indeed, much the same care should be taken as with a sensitive plate. If, on the other hand, the print is nearly printed out in the frame, it is more difficult to stop the development exactly at the right point. The developing solution may be according to the printed formula, but he (Mr. Fry) prefers to use it of half that strength as being more manageable. The prints must be well washed to remove the developer. He noted that it had been said that the toning process ought rather to be called intensification. This, he thought, was only applicable when the developer is not thoroughly washed out; in that case there is intensification. By using only a small quantity of developer and changing it after each batch of two or three prints, uniformity is obtained. The Paget Company recommends the sulphocyanide bath for toning, but he preferred the combined toning and fixing bath. Many, himself amongst others, could not get on with sulphocyanide; at the same time he knew that some did succeed with it. He did not use either alum or sulphate of soda in the combined bath, but added chalk to prevent acidity from arising. The toning is a little slower than when the image is printed out. The combined bath he made up as follows:—

Water	80	ounces.
Hypo	16	,,
Acetate of lead	1	,,
Chalk	1	,,

To every five ounces add one grain of chloride of gold, and that will tone one sheet of paper.

The Chairman asked how colour was judged in toning.

Mr. Fry replied that the prints must be stopped before appearing to be fully toned, as they came up blue when dry.

Mr. W. E. Debenham said there was no doubt a great advantage in being able, when necessary, to print a larger number of copies in a given time, and especially in being able to vary the intensity of a print to suit negatives of different character. He thought that it would be useful if some maker of printing-out paper would send it out in three grades, one to give the best result from a negative of what might be called normal density, one to suit negatives of greater and one for those of less contrast. Papers already on the market did this to some extent; and so to get the best results in all cases, some photographers would use one or other paper but it would be much more convenient if papers were sold similar in other respects, but with a recognised and stated difference in this respect. He thought that the sulphocyanide was to be preferred to the combined bath as regards permanence, although Mr. Fry had dropped the alum and sulphate of soda out of his formula.

Mr. H. M. Smith said that if Mr. Debenham had understood the question commercially, he would not have suggested that a manufacturer should send out paper in different grades as to power of contrast. It was well known that different makes of paper did give different results as to contrast, and a photographer wishing to take advantage of that fact used either make as his negatives might require, but it would not pay for one firm to have various makes. Manufacturing companies, such as the Eastman and the Paget companies, put their goods on the market so as to pay. As to the alleged superiority of sulphocyanide toning with regard to permanence, he called on many high-class photographers throughout the country, and was told by them that they had exposed prints by the combined bath for months in their show cases, and not found them fade.

Mr. **Debenham** could not see why it should not pay a maker to have two or three recognised varieties of paper. If a photographer regularly using A.'s paper also bought B.'s to suit negatives with less contrast, why should not A. keep his custom by supplying a suitable variety? The opinions as to permanence of photographers who did not make exact comparative experiments was, he thought, far from conclusive, and liable to be swayed by a consideration of what they found easiest. He would ask Mr. Fry what means he adopted to reduce contrast when printing from an intense negative?

Mr. **Fry** replied that he would reduce the amount of the No. 1 (the hydroquinone) solution in proportion to the other constituents of the developer. He would not attempt to be dogmatic as to the permanence of different methods of toning, as he had not made anything like comparative experiments.

Mr. J. S. **Teape** thought that with the developing formula published by the Paget Company there was a tendency to hardness. He found that when a print was lightly made, details quite invisible after exposure might be brought out in development, but by that time there would be heaviness throughout the shadows.

November 9th.—Mr. A. **Mackie** in the Chair.

Mr. **Beard** showed the "Gridiron Ether Saturator," and said that he had used it in various positions, on its side, for instance, and found it work equally well. There appeared to be no danger of explosion, or, at least, of anything more than a series of small harmless explosions in the outer compartment. He had also heated it, and still found no great difference in the flow of vapour. He thought that it would be well to add a stopcock at the outlet, as, otherwise, there was always a faint bead of flame at the jet from evaporation of the ether, even when no oxygen was passing.

Being lantern night, a number of slides by Messrs. Austin, Bayston, Fox, Freshwater, and Steinmetz were shown.

Woodford Photographic Society.

Ordinary Meeting, November 2nd.—The **President** (Mr. H. Wilmer) in the Chair.

Paper by Mr. H. **Crouch** on "Lenses."

The lecturer said that his object was not to give information that could be found in any elementary text-book, but rather to give reasons for lenses taking certain forms, and show the advantages that different types had for special work. Specimens of Jena glass, grinding tools, and lenses in different stages of manufacture were shown; among others, the two elements of a single lens, not cemented together, so that the surfaces that would be cemented when finished could be seen; the curves and the reasons for the form of the two elements being explained with black-board diagrams. It was stated that the exterior surface of the lens controls its whole character, and that flare-spot, which is rarely seen in modern lenses, could always be cured by altering the position of the stop.

Next meeting (informal), November 16th: subject for discussion, "What Form should the Work of a Photographic Society take, in order to be the greatest assistance to its younger members?"

Birmingham Photographic Society.

Ordinary Meeting, October 31st.—Mr. J. J. **Button** in the Chair.—About twenty-five members present.

Mr. **Middleton** gave a lecture, entitled "The Byeways of Warwickshire." He described in a very interesting way a great many of the less-known places of the county, giving many valuable hints. Mr. Middleton strongly urged those present to adopt a definite object in their work; thus would they add greatly to their own interest and also be the means of obtaining valuable records. This is well demonstrated by the work of the Warwickshire Survey, of which Mr. Middleton is an active member.

Sheffield Photographic Society.

The monthly meeting of this Society was held at the Masonic Hall, Surrey Street, on Tuesday evening; Mr **Ernest Beck** in the Chair.

The photographic exchange was effected, and, after considerable discussion, it was decided to ask Messrs. Keene and Scotton to act as judges for the annual competition.

The **Secretary** announced the result of the National Lantern Slide Competition as follows:—Mr. J. W. Charlesworth, silver medal; and Mr. Ernest Beck, bronze medal.

Mr. G. **Bromley** threw upon the screen a number of slides, by the Southsea Photographic Society, kindly lent by the Photographic Society of Great Britain.

The North Kent Amateur Photographic Society.

The inaugural meeting of the winter session took place on Friday, the 3rd inst. The **Mayor of Gravesend** (G. M. Arnold, Esq., D.L., A.C.C.), presided.

The **President** of the Society (I. C. Johnson, Esq., J.P.) delivered a lecture, entitled "Photography of the Present Day compared with that of Forty Pears Ago," with demonstrations.

There was an enthusiastic audience of about eighty.

Ashton-under-Lyne Photographic Society.

On Tuesday evening, November 7th, the above Society gave a public exhibition of the *Hand Camera and Lantern Review* Prize Slides, in the Co-operative Hall, Ashton. The hall was crowded in every part, and as this Society had won the second prize in this competition, a very deep interest was taken in the Liverpool slides, which had taken the first prize, as well as their own. Much satisfaction was felt in the fact that they had been beaten by such a Society, as it was generally felt that Ashton had come off a very good second.

John Andrew, Esq., presided, and C. E. **Redfern**, Esq., J.P., described the views as they were thrown on the screen by Mr. **Robt. T. Marsland**.

Newcastle-on-Tyne and Northern Counties Photographic Association.

The ordinary monthly meeting was held on the 7th inst., Mr. J. P. **Gibson**, President, in the chair.

The **Chairman** opened a discussion on "Printing Processes," which was continued by Messrs. **Auty**, **Arnott**, **Brewis**, **Brown**, **Park**, **Parry**, and **Watson**, who exhibited specimens of almost every process.

The details of the forthcoming Exhibition were discussed and voted upon.

Next meeting, November 21st. Exhibition of the "National" prize slides.

DUNDEE AND EAST OF SCOTLAND PHOTOGRAPHIC ASSOCIATION.

THE second general monthly meeting of the session was held in Lamb's Hotel, Dundee, on Thursday, November 9th, Mr. J. D. COX (President) in the chair.

After routine business, Dr. J. K. TULLOCH read a paper, entitled "Remarks on Hand-camera Work and Hand Cameras."

Mr. FEATHERS, curator of the Society's album, drew attention to his difficulty in procuring prints for the album from the members, and hoped that in future they would conform to the rule of contributing at least one print each.

The prizes for the best pair of prints taken at the Association's excursions during the past season were awarded to—1st, V. C. Baird; 2nd, Rev. E. J. Gough: and 3rd, J. Thow.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

November 13th, 1893.

IN the regretted absence through illness of Mr. Horsley Hinton, who was to have addressed this Society, a general discussion on various topics took place.

Mr. AVERY raised the question whether it was allowable, or true in art, to put a cloud into a landscape which was photographed on a day when there were no clouds but a clear blue sky, or whether such a sky should be simply toned down to represent a blue sky.

Mr. MARCHANT thought it would be justifiable to put in any cloud that was suitable, but it *must be* suitable. He did not think a painter would stand at putting in a suitable cloud if it helped the picture, and why should not a photographer?

Mr. MATTOCKS had seen many paintings with a cloudless blue sky, and if a photographer could convey the idea of a blue sky he did not know why he should not do it. But it was admittedly difficult, and the next best thing was to put in a suitable cloud.

Mr. GOLDING thought that a sky slightly toned down would, at any rate in some cases, represent blue sky, and instanced Mr. Calland's picture in the Salon, "Orchard in June."

Mr. COX thought a man must carry in his mind the ultimate effect desired, and might do anything which would help him to gain that effect.

Mr. BEADLE thought that anything which would tend to make a photograph more picturesque was justifiable.

Mr. MUMMERY said it did not matter two straws whether clouds were present when the landscape were photographed or not. Would any particular cloud improve the effect? That is where a man must use his judgment, and he would put a cloud in if he thought it would be an improvement. He thought it possible to get the exact tone value of a blue sky if it were required.

Mr. COX objected that you could not get the luminosity of the sky.

Mr. MUMMERY said you could not get the luminosity of the setting sun, but you could get a tolerably correct representation of it by lowering the tone of the picture to correspond.

The discussion was continued by Messrs. FORBES, WALL, PITHER, CHERRY, and others, the general opinion being that, if a cloud would help the picture, it might be put in.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

MINER.—For dark-room heating a Rippingill oil stove with red glass in front will do well if the space to be heated is small; but we are not sure whether the fumes would or would not have an adverse effect—like gas—on carbon tissue in the course of drying after being sensitised. For a room of any size we should be inclined to recommend a gas stove, of that type in which Bunsen burners make a series of ornamental bars red-hot. Such a stove should stand well forward in front of the ordinary fireplace, which should be completely closed in, except a space left for the chimney of the gas stove. A red glass screen in front will prevent mischief from the light given by the burning gas.

A. D. K.—A good lamp for developing enlargements is made by converting an old outside shop lamp (gas) to the purpose. We mean one of those hooded lamps which throw the light from an Argand burner downwards. The glass in front should be covered with yellow paper, and the lamp glass replaced by a ruby one. Since the common adoption of the electric light for shop windows, these lamps are common as second-hand articles.

H. H.—The forthcoming YEAR BOOK OF PHOTOGRAPHY will contain several process blocks of the kind to which you refer; but, if you are in a hurry to see specimens, you can, doubtless, obtain them from headquarters.

G.—We are sending the two volumes to you by parcels post and regret that there has been some delay in complying with your request.

SIGMA.—We publish with this issue an article on the subject, by which you will see that we quite appreciate the very serious bearing of the matter. At the same time it would be premature to condemn a system until more is known of the conditions under which the accident occurred.

T. O. M.—We would not advise you to install an apparatus for making gas from gasoline, as an antidote to what you consider overcharge by the gas company. The present piping would have to be replaced by pipes of larger bore, and there are other far more serious objections to the process. If you are resolved to adopt another form of illumination, and you cannot afford electricity, try safety paraffin lamps.

CHROMO.—It is very difficult to get an even tint on a lantern slide until you have had much experience of the work. Try the following, which is the easiest we know, but is only applicable to an unvarnished gelatine picture. Soak the slide in water for ten minutes, drain, and remove superfluous moisture with a clean linen rag. Now place the glass in a sloping position and apply a wash of aniline dye thinned with water to the tint required.

NESSLER.—The solution is used as a test for ammonium salts, and you can procure it of any good chemical apparatus dealer.

P. (Galway).—A good cold varnish is made by diluting japanners' gold size with somewhat more than its bulk of benzole. Do not handle the mixture near a fire or light.

IODIDE.—The process is too long to detail here, and, besides, it has little to do with photography. Consult Ure's Dictionary or "Spon's Workshop Receipts." The last-named gives a very complete description of the matter.

PATENT OFFICE

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1838. NOVEMBER 24, 1893.

NOTES.

ALL will be glad to learn that, in spite of what many have regarded as a rival show, the thirty-eighth exhibition of the Photographic Society has received greater support from the shilling visitors than any of its predecessors. No fewer than 11,376 persons passed the turnstiles, exclusive of members and other favoured individuals who visited the Gallery when it was closed to the general public. This is nearly 1,500 above the record for last year, which was the largest previous total of admissions. It is noteworthy that among the visitors were some of the best known painters of the day.

THE fifth annual exhibition of the North Middlesex Photographic Society will be held on the 29th instant, at Jubilee House, Hornsey Road, N.

PHOTOGRAPHERS who are contemplating emigration as a cure for slack business would do well to pause before taking any decisive step. We have had letters from various countries within the past few months, all of them complaining of hard times. The latest is dated from a Californian town, in which the writer speaks of previous constant work as a "happy condition of affairs which has passed away for the present all over the country."

THE first annual report of the Charitable Lantern Entertainment Society has reached our office. From this we learn that the Society gave twenty-five entertainments at different hospitals and other charitable institutions, at a cost of a little more than £22, which small sum was not quite covered by the subscription list. We trust that during the present season this useful Society will receive greater encouragement from the public.

ON the 9th inst., Captain Hayes, who is well known as the author of several books on the horse, lectured before the Leicester Photographic Society, on "Animal Photography," to a crowded and interested audience The lecture was fully illustrated by lantern pictures.

WE learnt last week, too late for immediate publication, that among the judges already appointed for the coming International Exhibition at Bristol are Messrs. Valentine Blanchard, Payne Jennings, and S. P. Jackson, of water-colour fame.

THE line-engravers have to thank photography for taking the bread out of their mouths by substituting for their highly-skilled labour a mechanical process. They are still further hardly used in the circumstance that certain fraudulent photographers have from time to time made a business of copying well-known copyright engravings and selling them for as many shillings as the originals would cost pounds.

THE last extensive fraud of this kind occurred about twenty-five years ago, and much stir did it make in artistic circles. The late Mr. Graves, of Pall Mall, found that a large number of his copyright engravings had been photographed, and the positives were being quietly hawked about at Government offices and elsewhere. After much trouble he ran the offenders to earth, and the business of pirating engravings was for a time stopped.

IT must be mentioned that the photographs were most beautifully done, and to many would be quite as acceptable as the originals of which they were such faithful copies. Two of the photographs which formed the subject of the prosecution came into our possession by the courtesy of Mr. Graves. They are Solomon's "Waiting for the Verdict," and the companion picture, "The Acquittal." Alas, the dishonesty of the photographer extended to very imperfect elimination of the hypo, and the pictures are now yellow-jaundiced things which are not worth keeping save as a memento of an interesting trial.

History repeats itself, even in the annals of crime, for, on Friday last, Walter Perry, of Wood Green, who is described as a picture dealer, was charged on remand with unlawfully copying and multiplying certain pictures, and thus infringing the copyright of various well-known firms, among whom were Messrs. Agnew, Arthur Tooth & Sons, Henry Graves & Co., Messrs. Dowdeswell, and others. It was shown that the delinquent had photographed artists' proof engravings of well-known pictures, and had sold full-sized prints from the negatives which he had produced. He had operated in this way upon no fewer than forty-three pictures, and would doubtless have made the speculation a paying one had he not been fined close upon £300, with the alternative of a year's imprisonment.

At a meeting held at the rooms of the Society of Arts on Wednesday, November 15th, Sir Richard Webster, Q.C., M.P., in the chair, Mr. T. R. Dallmeyer was presented with the Society's silver medal in connection with the useful paper on photography read by him before the Society three sessions ago, and also for the valuable information contained in his paper on tele-photography and the subsequent success obtained by the instrument described by him, which has marked a fresh departure in the science of photography.

In one of the papers it was stated the other day that there were several women following the occupation of street artists, whereupon a letter appears from one who describes herself as "the lady street artist," asserting that there is in the metropolitan streets only one female artist, and she is that one. We are glad to hear this, because the occupation entails exposure to all weathers, and is, therefore, a hard one for a woman to follow, and also because we do not think that this particular branch forwards the interests of art in any way.

But a certain change has of late years come over the practice of these itinerant artists. Time was when each picture was drawn in pastels on the pavement, but now the artist brings his pictures ready drawn on card or wood, and arranges them along the kerb, while he squats at the end of the row for the collection of coppers. The alteration suggests that there may be a manufactory of these pictures somewhere, and that they are not the work of those who exhibit them. It is said that some of them are coloured photographs. To what depths will camera work sink after this?

Professional photographers have suffered severely from the financial depression of the past two years. When times are hard, luxuries are the first to be cut off, and that sitting for one's portrait is a luxury is generally allowed. Photographers have not even benefitted by the unprecedented cheapness of silver as they might have done years ago. The collodion process, is, of course, practically dead, and where platinotype is not used the albumenised paper is generally bought ready sensitised. On the other hand, the manufacturers of dry plates and sensitised paper should have got a little advantage out of the low price of silver.

The *Stationery World* advises stationers to take up the sale of stereoscopes and slides, and remarks that the American importations are very cheap and good, and that there is a promise of this charming instrument coming once again into favour. We presume our contemporary speaks with a knowledge of the trade. Up to the present, however, only a very few shops have taken up the revival. As for English photographers, they do not seem at all convinced that stereoscopic slides will sell, for the views in the market are almost entirely American subjects. This is a reversal of the experience of twenty years ago, when English slides drove the American ones completely off the field, while the best customers of the English dealers were the Americans themselves.

Miss Everett, at the last meeting of the British Astronomical Association, gave an interesting account of the progress made up to the present in the work of mapping out the heavens by means of photography. So far as the production of the negatives was concerned she thought that in a few years—ten at most—this portion of the work would be finished. A central bureau has been established in Paris for mapping not only the plates obtained in the French capital, but those obtained in other places where the facilities for mapping did not exist. During the year, at Greenwich, 350 of the fields for the catalogue and 226 for the chart had been cleared off. It is satisfactory to note that the photographic manipulations have been all that can be desired, no practical distortion of the films having been noticed. In Paris, as in London, a large portion of the work has been undertaken by ladies.

A TOUR IN BELGIUM.

BY CECIL M. HEPWORTH.

III.—MECHLIN.

WE were reluctant to leave Antwerp. It was not in the nature of things that we should like doing so after such a brief stay in so beautiful a city. But we had several places to go to before the end of the week, and we thought that we must not linger too long in one town, be it ever so lovely. An Englishman always likes to get his money's worth, wherever he is, and we did not intend to miss any of the places at which our tickets permitted us to stop.

Nevertheless we were very sorry that circumstances obliged us to leave, as the burglar said when the bull-dog broke away from his chain. But we must away. We had arranged to visit Mechlin, by taking a river steamer first to Tamise, a place we had not even heard of before. One of my friends thought that it might be an ancient city all ruinous and decayed, with perhaps some Roman remains (as if there was any place in Europe without Roman remains!) We indulged in much unprofitable speculation as to whether it was a large town or only a mere village, whether the inhabitants were civilised or barbarous, and why it was christened after our own dirty river upon which London is built. We were to get there, our tickets said, by means of the *bateau à vapeur Wilford*, and we tried to discover from our chambermaid its time and place of departure. But she didn't understand English, in fact she didn't seem to know much about her own language either, for when we asked for a *table-de-temps* she had to go and fetch the busy, bustling little landlady, who, however, quickly brought us a time-table, and set us right. We found, with her aid, that the boat started at 10 a.m. There were several other departures daily, which rather puzzled us until we discovered that there were four steamers *Wilford*, distinguished by numbers in Roman characters, like schoolboys and kings.

We collected our few traps, and made our way towards the quay. We procured several snap-shots of dog-carts—proper dog-carts I mean, with dogs to draw them—groups of people lounging on the quay, some selling flowers others sitting at the receipt of custom-dues, and looking with suspicious eyes on all who chanced to pass to or from the river; others impatiently awaiting the advent of the great, ugly, lumbering steam ferry-boat, which presently waddled up alongside, and disgorged a crowd of passengers. After a while we discovered *Wilford II.* hiding away 'neath the shadow of the gloomy old Inquisition buildings, like a dirty child, who doesn't want to be noticed by visitors. We knew the boat by her yellow funnel, for a counterfeit presentment (very much counterfeit) adorned the top of the time-bills, printed in radiant colours and otherwise made to look very fine and large. No one can be blamed for this, however, for the bills were printed in Maidstone. We picked our way gingerly on board the dirty little boat. It made us feel quite home-sick, it was so grimy and Thames-tuggish. I wanted to change my plates, so I went down into the cabin. Ugh! There were three river men down there playing cards. They were the dirtiest men I ever saw. I came up again.

The other passengers consisted of two old women, three babies, and several tons of cargo. This is literally true, though Irish, for the cargo—barrels of something, mostly—was thrown down all over the deck in the greatest confusion; and the live passengers had to pick their way amongst it as best they could.

This was, of course, a splendid opportunity for grumbling, and I think we three did our duty as Englishmen. But we did not have much time, for the boat soon started, and then we found ample employment in photographing the ever-changing scenes presented to our view. The little boat *did* cut along with a vengeance, and we forgot her shortcomings in admiration of her speed.

At first our eyes lingered lovingly upon the quaint and beautiful city of Antwerp, and we took several views of her as she was presented to us in different phases, but she was soon out of range, and a bend of the river presently hid her from our sight. Turning, we saw a quaint old Dutch barge floating lazily on the incoming tide, with her curiously carved bows and stern rising high out of the water. We had scarcely time to make a photographic note of her before we were past, and making for a long dark object on one bank, which afterwards proved to be a wooden landing-stage. There was a church and one or two painted, square-faced houses of the usual type, and that was all. We passed and stopped at several places of this description. Sometimes there was no pier of any kind, and a boat would meet us and embark or take off a passenger. Once we stopped at a landing-stage belonging to a more important place, for it boasted some factory buildings with smoking chimneys, and three or four queer old barges drawn up alongside, casting dark shadows and brilliant reflections on the quiet river.

Going on in this fashion for some time, churning up the water with the noisy paddle-wheels of our energetic little boat, we presently came to a bifurcation of the river, and then to another pier on the opposite bank, belonging to a larger village than we had yet passed, which we surmised to be Tamise. There was no name on this or any other pier, so we asked a fellow-passenger, a dirty, Italian-organ-grinder-looking man, but he signified by gestures that this was not Tamise, and pointed with his dusky forefinger to a distant point on the horizon where a dark thread, which afterwards proved to be a railway bridge, spanned the shining streak of water.

Before we started once more we took a picture of a group of watermen on the wooden quay, and another of a picturesque barge near at hand. Half way from this pier to Tamise our attention was arrested by a loud fluttering, and turning round we were just in time to see the last of a large number of pigeons leave a basket in which they had been conveyed here. Another basket was opened, and the birds rushed joyously out and soared upwards, and forming one large group, flew round in a circle to get their bearings apparently, and then struck out for Antwerp. Four or five dozen more were liberated when these were out of sight, and after going through the same manœuvres, flew off after their comrades. We had heard of "Antwerp Blues." I suppose these were they.

We soon reached the frail-looking railway bridge, and, passing under it, we obtained a view of a picturesque village, which our smutty friend informed us was Tamise. The quay, if I may apply the term to a rough wooden erection which did duty as a landing-stage, was backed by a few houses of the pink-and-yellow, square-faced variety, placed so as to form a small open space, from which two or three narrow streets diverged. In one of these streets was a church whose brightly-painted tower formed the principal object in the view. Alongside the pier were two or three barges, and another *Wilford*. The few men loitering on the quay or the decks of the boats regarded us with a lazy curiosity, as we slowly drew towards the shore, little guessing that their portraits were being taken in the innocent-looking little boxes we held.

TAMISE.

After delivering up our tickets we came upon some groups of Belgian peasants, and then walking up the principal street, which was filled with work-girls, just let out from some adjacent lace factory, whose clattering *sabôts* and merry laughter made pleasant music in the air, we reached the station and waited for our train.

The "station" consisted of a lean-to shed with a large waiting room and ticket office, and the platform was raised about one inch from the ground. The train comprised a curious-looking engine, and two large tramcars with a platform between them, and doors at the ends like American cars. This queer train came in on the line farthest away from the solitary "platform," from which we had to descend, cross the intervening rails, and climb into the high cars. Then the thing started, and we stood on the swaying stage between the cars and wondered. We were travelling at a good rate on a single line, and the walls of the cars were brushed by the bushes on either side, so narrow was the way. In half an hour or so we sighted the great square, ugly tower of the Cathedral at Mechlin on our "port bow" as it were. We began to fear we were in the wrong train, we were going such a long way to the right of our destination. Just as we were discussing the advisability of jumping off, however, the line took a curve, and we steamed into the town.

Tired and hungry, we commenced a weary march along the broad, even, and indescribably hot thoroughfare facing the station, bent upon finding a restaurant, and not much in the humour to admire anything else. That is the reason, I suppose, that the immense Cathedral tower looked so grim, ugly, and uninteresting; that the ancient buildings all around seemed to us nothing but houses in a very bad state of repair; that the canals looked dank and smelt unpleasantly; and that all the houses of refreshment were either so small and dirty that we did not fancy them, or so grand and pretentious that we thought they wouldn't fancy us. We climbed up into the deserted band stand and took some photographs of what I suppose was the *Grande Place*, but was much too apathetic to ask. We sneered at the immense circle drawn around a statue near at hand, which we knew represented the size of the clock-dial in the tower above us. That idiotic clock began chiming at us mockingly, and made us so mad that we wanted to smash it.

A CORNER OF THE OLD CLOTH HALL, MECHLIN.

At last we found a sort of *café*, and went in, and finding the room empty, stamped on the floor and banged our cameras on the table to attract attention. After a time a fat old Dutchwoman sauntered in, evidently surprised to find anyone there. We had the greatest difficulty to make her understand that we wanted something to eat, and it took her a quarter of an hour to get it. When it did come it consisted only of bread and butter, which was very nasty, and coffee which—to do it justice—was very nice. Then we talked to that old woman gently in

French, but found out afterwards that she spoke a patois. It is very aggravating when, with infinite pains, you concoct a sentence in French for the benefit of a French woman as you think, to find that her lingo is only a crack-jaw mixture of Dutch and German. We felt as if we had been swindled, and were righteously indignant. We threatened to write to the *Times* too, but she didn't seem to care. She only smiled and shrugged her shoulders. Then, when we wanted to pay, or rather when she wanted to be paid, there was a worse muddle still, and it was ever so long before we got it settled. She wanted to pocket the twenty-franc piece at first, and it took us some time to persuade her that we should like some change. I fear we nearly lost our tempers with that old dame.

THE CATHEDRAL, MECHLIN.

When we got away we wandered round the town, and took some photographs, as in duty bound. There were some nice little bits on some of the canals, and a very tumble-down old building opposite the Cathedral, which made a good picture. But on the whole, we were very much disappointed with Mechlin, and soon came away. From the glowing accounts given of this city by different friends who have visited it, I fear we must have missed a great deal that was worth seeing.

An hour's railway travelling landed us once more at Brussels. We deposited our traps at the *Salle de baggage*, and, freed from this burden, we felt more charitably disposed towards things Belgian, and prepared to spend a pleasant evening. It was some time after sunset when we stepped out into the brightly lighted streets of modern Brussels. What a curiously strange sight they presented to our cockney eyes! Instead of the incessant roar of traffic, and trampling of hundreds of hurrying feet which seems to go on night and day in London, these broad avenues were deserted by almost all vehicles except trams, and all the men and women seemed to have forgotten all thoughts of business, and to be bent on enjoying themselves in the cool of the evening. We sauntered leisurely (like everyone else) down the beautiful *Boulevard Anspach*, and noted how, instead of gloomy offices and counting houses, brightly decked shops, with most tempting wares set out so as to allure the passer-by, and brilliantly lighted *cafés*, with no fronts to separate them from the open streets, lined the broad highway on either side. There were no public-houses as we understand the term, but instead these gorgeous places which, for want of a better name, we dubbed "*cafés*."

There were electric lights everywhere, and no gas was to be seen, except lamps of the incandescent variety, which means of illumination seems to have "caught on" in this city, by the way, and the brilliant white light emitted from thousands of these lamps in the various *cafés* vied successfully with the yellower hue of the electric glow-lamps.

Everything is on a scale of great magnificence, which fully warrants the title of "Lesser Paris," which has been bestowed upon this town. And, indeed, one might easily fancy oneself in the French metropolis, for here everyone speaks French, everyone is polite, and everyone seems to have nothing in the world to do but to enjoy him or herself as much as possible.

Up in the *Parc*, the scene was quieter still. Thousands of tired workers sauntered in little groups down the broad, dark avenues, or refreshed themselves and their sweethearts at the gay little "Trinkhalles," which were dotted about here and there. At these little kiosks, for the modest sum of five centimes, one can get a glass of cooling seltzer, flavoured, for an extra halfpenny, with any of the various fruit essences. One portion of this pretty pleasure-ground is gaily illuminated by myriads of tiny coloured lamps, and they call it "Wauxhall," I suppose after our own garden on the Surrey shore of the Thames, which has long since passed away.

We enjoyed ourselves with the rest of the people, and shall remember the evening we spent at Brussels as one of the pleasantest in our Belgian trip.

(*To be continued.*)

Society of Arts.—The Juvenile lectures, delivered during the Christmas holidays, January 3rd and 10th, will be on "Plants: their Foes and Defences," by Mr. Walter Gardiner, M.A., F.R.S.

THE RECENT SOLAR ECLIPSE.

BY CAPTAIN E. H. HILLS, R.E.*

(*Concluded from page* 727.)

THE coronograph consists of two long-focus cameras, mounted side by side on one equatorial mounting; one was provided with an achromatic lens of 4-inch diameter and 5-foot focus, giving an image of the sun a little under half an inch in diameter, and the other was provided with a Dallmeyer 4-inch photo-heliograph lens mounted in combination with a $2\frac{1}{2}$-inch Dallmeyer negative lens of 8-inch negative focus, giving an image of the sun $1\frac{1}{2}$-inch in diameter.

I may say at once that the results obtained by the Dallmeyer lens were distinctly superior to those of the single lens—(slides).

I will now show slides of three coronas that have been successfully observed by the same instrument. You will understand that these are drawings, not direct photographs, as it is impossible to get all the details from the brightest portion near the limb to the faint outer streamers impressed upon the plate with the same exposure—(slides).

I have now some slides prepared from the drawings made by earlier observers, and you see how very different they are—(slides). It would seem that this beautiful phenomenon causes even the most experienced observers to lose their heads completely and render absolutely valueless their visual impressions. It is not too much to say that but for photography we should not be in possession of a single reliable corona picture.

The next instrument we employed was the prismatic camera—sometimes also called the slitless spectroscope or the objective prism. This consists essentially of a large prism of small dispersion placed outside the object glass of a photographic telescope.

When directed on the eclipsed sun, this instrument gives a series of rings corresponding to the different bright lines in the spectrum of the prominences. If there happened to be a very bright line in the spectrum of the corona, a corresponding ring will also be seen. This is so in the case of the 1474, or "green" line; but none of the other corona lines are strong enough to thus show themselves.

The great advantage of this instrument lies in the fact that it admits the largest possible amount of light to the plate, and consequently instantaneous exposure can be used. It is an advantage to use orthochromatic plates for getting out the green line and the regions near it (slides).

One of the special points to be investigated by this instrument was the spectrum of the regions close to the body of the sun; for this purpose several instantaneous exposures in quick succession were to be made just after the beginning of totality and just before the end. By this means it was hoped that a large number of bright metallic lines would be disclosed. This expectation was partially realised; but for the full results we must wait for the publication of them by the Royal Society, at whose expense, conjointly with the Royal Astronomical Society, the expedition was sent out, and whose property therefore the results are.

The other instrument we used was the slit spectroscope. In this case two complete instruments were mounted on one equatorial mounting; they were of different dispersive power—one having two flint prisms and the other one. They were each provided with a condensing lens to throw an image of the sun on the slit. The position of this image was arranged so that the slit cut right across it, and therefore the resulting photographs show three distinct spectra (slide), first, the portion over the dark body of the moon. This shows a few spectrum lines which are due to atmospheric haze and are of no importance. On either side of this comes the part where the slit cuts through the prominence region. There may happen to be a prominence at this point, in which case we shall get its spectrum in the form of a series of small dots in the photograph. This eclipse took place nearly at a time of sunspot maximum, and therefore prominences were plentiful. This is well shown by the fact that the narrow slit fell across a prominence in three cases out of a possible four. Outside this region again we get the true spectrum of the corona, to obtain which this instrument was specially designed.

The lines are very faint, and can be seen only by means of a microscope; but it is by these faint lines that we gain real information about this phenomenon.

The photographs show in a marked manner the shift towards the red end of the spectrum of the point of maximum actinic effect of the corona light as compared with sunlight, proving that the corona cannot be due in any great measure to sunlight reflected from small particles.

The disadvantage of this class of instrument is the small amount of light that can be admitted into it. The slit cannot conveniently be more than ^{500} inch in width unless the collimator is of long focus, which is inconvenient when it is to be mounted equatorially. If we used a siderostat we could then have the collimator and camera lens of any focus we liked, which would be a very great advantage.

Now a few words as to the more purely photographic questions involved.

The temperature at Fundium varied from nearly 100° F. at midday to about 70° F. in the early morning. We constructed a dark-room in one of the observing huts; but owing to the very great heat inside, reaching sometimes over 120° F., we never used it except for filling slides, and we did all our developing at night on board the gun-boat.

We had no ice. A large piece which we were able to procure about a week before the event, in spite of every care, relentlessly melted away, and had totally disappeared on the day before the eclipse.

However, we had no difficulty at all from this cause, and I think I may say that of all the plates we exposed, not one showed a sign of frilling. All the eclipse plates were developed and fixed before we left Fundium, except some of the prismatic camera plates, which were brought home undeveloped. As to the policy of this course opinions are much divided; but experience gained at previous eclipses seems to show that it is better to develop at once, and this certainly has the advantage of relieving the observers from much anxiety of mind.

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* Read before the Photographic Congress.

We exposed a number of trial plates during the week before the eclipse, and thus would have been certain to find out if any special precautions were necessary. We used plates of various makes, and did not notice anything different in their behaviour to that found under ordinary conditions.

One mistake we made was using too rapid plates; the so-called "special extra rapid" or whatever other title their makers designate them by, have usually very slight advantage in the point of speed over ordinary makes, whereas the resulting negatives are nearly always inferior. Some orthochromatic plates were used with a prismatic camera, and they would possibly have been advantageous for the slit spectroscope; for the corona photographs they present little or no advantage.

As regards developers, I have nothing special to record; we used the ordinary kinds, pyro-soda, eikonogen and amidol, and noticed no peculiarities of behaviour.

As an instance of the unexpected dangers to which negatives are liable, I may mention that some of our plates, fortunately not valuable ones, were nearly destroyed by cockroaches, who seemed to find the gelatine film a more appetising fare than ship's biscuits.

In conclusion, let me show you some slides representing the eclipse camp and instruments at Fundium, together with some views of the surrounding country. The originals of these were taken by Professor Thorpe and Sergeant Kearney, and it is to Professor Thorpe's kindness that I owe these slides.

The President remarked that owing to the lateness of the hour he could not call for any discussion on Captain Hills' paper. He had been much interested in the description which was given of the observation of the eclipse, and in the views which had been shown, and was particularly gratified to find that a grandson of Sir William Grove had entered the ranks for the benefit of the Government photography.—*Photographic Journal.*

◆

In a photographic sense the world has reason to regret the death of the French specialist in mental disorders, Dr. Charcot. Dr. Charcot was an ardent photographer, and at the time of his death a photo-chronographic apparatus was being constructed for his use in the Salpetrière. This instrument has since been completed and will fulfil its destined misson in the hands of Dr. Charcot's successors. It differs some what from the photo-chronographic camera with which M. Marey has done such marvellous work, as the aim sought was not to get a quantity of pictures in as short a time as possible, but to obtain at regular intervals a limited number, so as to seize any movements in the walk of epileptic and paralytic patients which might escape direct observation. As a rule a dozen negatives will suffice for this purpose.

INTENSIFICATION OF GELATINE DRY-PLATE NEGATIVES.

BY DR. W. P. JENNEY.

USUALLY, negatives are strengthened after fixing and washing, in which case it is necessary to first expel all traces of hypo and silver to prevent stain and spots. To drive off the last trace of hypo the negative, after fixing and washing, should be bathed in a saturated solution of alum, and again washed for a quarter of an hour in running water.

The following solution of bromo-iodide of copper has proved successful for intensification.

Sulphate of copper	12 grammes.
Water	180 grammes.

Add to this, stirring continually:

Iodide of potassium	1 gramme.
Bromide of potassium	2½ grammes.
Water	60 grammes.

A slight precipitate of yellow iodide of copper will occur. Allow to settle, and use the supernatent liquid.

Before placing the negative in the above solution, soak it in water till the film is soft, then place in above solution, and expose to direct sunlight or strong diffused daylight. The film quickly bleaches, turning yellow. It may then be blackened in a strong solution of sulphite of soda, to which a little nitrate of silver has been added. Better results are obtained by developing with hydroquinone. The colour of the negative depends on the composition of the developer. Eikonogen does not seem to answer this purpose.

The following formula gives a beautiful red colour:

Hydroquinone.....................	60	grammes.
Cryst. sulphate of soda	30	grammes.
Carbonate of soda	8	grammes.
Bromide of potassium	0·37	gramme.
Water	250	grammes.

By changing the proportions of hydroquinone and sulphite of soda, beautiful sepia—dark brown—and iron black tones may be obtained.

The development must go on in broad daylight, or better still, in direct sunlight.

The effect of bromide and iodide of copper upon the film is probably produced by the liberation of iodine and the formation of a double iodide of copper and silver. In the application of this process to bromide of silver prints, the picture bleached, and the paper became dark blue by the formation of iodide of starch. After immersion in the hydrochinon developer the blue colour disappeared, and the picture developed of a sepia brown colour.

From the great variety of tones obtainable by the application of these developers, it is not unlikely that this intensification may prove advantageous in lantern slides.—*Photo. Mittheilungen, Berlin.*

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, NOVEMBER 24, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street London, E.C.

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ABOUT FRAMING PHOTOGRAPHS.

RECENT photographic exhibitions have been fruitful in new methods and new styles of work, and the careful observer will have noted that the pictures are not the only things in which a restless desire for novelty—if not eccentricity—has manifested itself. The frames in which they are placed have shared in the revolution from previous fashions, and a studied simplicity, or a wanton extravagance of ornamentation, have given place to the decorous gilt flat or reeded oak slip. The mounts, too, have suffered a change where they have been retained at all, and "plate-sunk" cards and complex tints are substituted for that vast expanse of white which photographers seem to have borrowed of the line engravers of half a century back, who were wont to print a tiny picture in the middle of a very big sheet of plate paper.

The manner in which a work of art is framed is clearly a matter of taste. Some prefer a highly ornamented and gilded bordering for their pictures, and, to go to the other extreme, there are others who will have their frames made of rough wood from which the natural bark has hardly been removed. Such extremes are dangerous, the first-named tempting the onlooker to pay more attention to the frame than the picture, because of its gorgeousness; and the second attracting attention because of its eccentricity. We are, many of us, sad copyists in these things. Because a clever French painter started the fashion for rough wood frames a few years ago, it is surely no reason why photographers should follow his lead. Genius such as his was entitled to a little latitude in the way of framing, and the quaint little pictures enshrined in this manner seemed to give countenance to the innovation; but for a photographer to ape the fashion seems to us meaningless and somewhat silly. We seem, indeed, to be copying the painter's methods in far too servile a manner, and, when we extend the imitation to fashions in frames, the practice becomes even still more ridiculous.

The manner in which a photograph should be framed must vary, we think, with the nature of its subject and with the tone of the picture. It would seem, from what we have noted at recent exhibitions, that many are of opinion that a photograph should be framed without any visible margin or mount. Some subjects will, of course, bear this treatment, but the great majority are better, we think, for a margin; not necessarily a white one, but one of a tone which is not obtrusive, but which will help to concentrate attention on the subject within it.

It is impossible for the directors of any exhibition to lay down any hard and fast rule concerning what kinds of frames shall appear on their walls. It is true that they rigidly exclude Oxford frames, but this is a kind of defensive measure for the benefit of all, on account of the space which would be wasted in accommodating corner excrescences. Beyond this, the frames must obviously be left to the individual taste of the exhibitors, and we must look to the improvement which must in time come from the competition among exhibitors to adopt the most effective methods of showing off their pictures.

For photographs hung in a private room there is another matter to consider, and that is the colour and general decoration of the apartment in which the pictures are to be placed. A black or dark frame, with a low-toned mount, will look admirable on a wall where low tones prevail, such as is commonly the case in a modern dining room. But place that picture on a light-tinted wall, and it will a positive eyesore. In a word, the pictures should be more or less part of the general decorative scheme of the room, and the nearer this ideal is approached the more satisfactory will the general effect be. We have too often seen rooms in which the pictures, good enough in themselves, have been framed and hung in such a preposterous manner that they would have been far better absent altogether.

It is astonishing how, in such a case, a little taste in the matter of frames and mounts, a little change of position, and a trifling alteration of distances and heights, would lend a charm to an otherwise ugly and inartistic room.

THE STANLEY SHOW.

THE Stanley Show at the Agricultural Hall, which opened on Friday last, and closes to-morrow, comprises an exhibition of photographic appliances and pictures which is decidedly worthy of a visit. This section of the Stanley Show has been very well arranged under the auspices of Mr. W. D. Welford, and we name the appliances before the pictures because the former are really more important than the latter. In recent exhibitions the manufacturers have been somewhat in the minority, but here they have made up for previous shortcomings by quite an extensive display. Messrs. Morgan & Kidd take perhaps the largest space for a grand show of their splendid bromide enlargements and collotypes—and a collotype press at work certainly adds interest to a capitally arranged exhibition. Mr. Adams is also an exhibitor on a large scale. While, for a tastefully arranged kiosk—if we may call it so—we must give the palm to Messrs. Beck for their "Frena" exhibit. This ingenious film camera is shown in all its forms, while specimens of its work, from lantern slides to bromide enlargements, are present in endless profusion. The tabloids of Messrs. Burroughs & Wellcome are also well arranged in a special exhibit, together with pictures which have been developed and printed by their aid. The ingenious Cresco Filma method of enlarging negatives is shown in action. Messrs. Platte and Witte have a goodly collection of camera fittings, &c. Mr. John Piggott is to the fore with a number of useful novelties, and others whose names are more or less known in the photographic world bring up the rear. Unfortunately, at the time of our visit on Monday last, the catalogue was not yet ready, and we were forced to compile a mental one for ourselves, which certainly places the reviewer wishful to do his duty at a great disadvantage.

The pictures are separate from the apparatus, and on the whole they make a fair show—but the best we have seen at recent exhibitions—both the Salon and Pall Mall contributing a number of good things. One noticeable feature of this exhibition, and one which we are very glad to chronicle, is the number of small pictures of excellent quality which are hung upon the walls. This is, no doubt, due to the fact—but we cannot refer to a non-existent catalogue—that many of the exhibitors are cyclists who, as a matter of convenience, carry a quarter-plate apparatus only. But, we repeat, we were glad to notice this feature, for a small baby is as good, and very often better, than a big one; but is likely too often to be ignored because of its insignificant dimensions. We do not attempt to give any detailed criticism of the pictures, but must content ourselves with publishing a list of the awards. The judges were Messrs. Traill Taylor, H. Sturmey, and E. J. Wall.

List of Awards.

Class A., Champion.—Gold Medal, No. 1, C. Smerdon Roe; Silver Medal, No. 11, Mrs. Main; Bronze Medal, No. 13, Mrs. Marriott.

Class B., Landscape.—Gold Medal, No. 129, R. S. Webster; Silver Medal, No. 57, W. M. Warneuke; Bronze Medal, No. 31, Prince Barma; Diploma, No. 89, John H. Anderson; Diploma, No. 72, J. Kidson Taylor.

Class C, Lantern Slides.—Awards not made yet.

Class D., Portraiture, &c.—Gold Medal, No. 211, D. J. Scott; Silver Medal, No. 186, Prince Barma; Silver Medal, No 235a, Gebruder Lutzel; Bronze Medal, No. 192, C. E. Wyrall; Diploma, No. 239, W. J. Byrne.

Class E., Hand-Camera.—Gold Medal, No. 307, James A. Sinclair; Silver Medal, No. 271, J. Kidson Taylor; Bronze Medal, No. 279, Charles Knight; Diploma, No. 305, John H. Gear; Diploma, No. 288, Charles Job.

Class F., Beginners.—Silver Medal, No. 392, John H. Gear; Bronze Medal, No. 336, Stewart Smith; Bronze Medal, No. 380, A. Kemp; Diploma, No. 363, John Henry Anderson.

Class G., Cycling.—Silver Medal, No. 418, E. Evelyn Barron; Bronze Medal, No. 424, W. B. Dart; Diploma, No 430, Harry Wade.

Class H., Society Exhibit.—Lantern, South London Society; Diploma, Midland Camera Club: Silver Medal, No. 475. C. Tylee.

EXHIBITION AT LEYTONSTONE.

THE second annual photographic exhibition of the Leytonstone Camera Club—a decided improvement on its predecessor—was opened last Monday evening by Mrs. E. W. Byrne. During the evening the Veronese Band performed musical selections, varied occasionally by a short lantern show, and this programme, we understand, is to be continued throughout the week. In the prettily decorated and well-lighted Masonic Hall, the various photographic pictures were hung to great advantage, reflecting great credit upon those responsible for the arrangements. Class A—a members' class—is devoted to landscapes and seascapes. Mr. D. G. Riddick is awarded a bronze medal for his picture, "Where Twines the Stream," a nice thing in brown. Nos. 9 and 10 are little views, tinted all over, high-lights and all, to a deep red-brown. This is not artistic, and we fail to see the use of it. Nos. 30 and 31, are very nice little Devonshire scenes, which do credit to their author, Mr. E. W. Defries. We now come to the gems of this class, two beautiful little mud-scapes—if such a term be admissible—which are really pleasing to look upon. They are named respectively "An Essex Swamp," and "A Summer's Eve at Canvey," and they win a silver medal for Mr. G. H. Cricks. Mr. Geo. E. Cox contributes, among others, a view of "Bonchurch Pond," and notice must be taken of Mr. F. J. Clarke's three views of "Penshurst," and of Mr. A. E. Bailey's "Eynsford Bridge" (No. 81). The bronze medal is deservedly taken by H. H. Summers for his picture, No. 74, "The Breath of Winter," another pretty little mudscape; and we must not forget to mention No. 62, a large picture by Mr. J. H. Gear, which is well worthy of notice, but unfortunately, it is hung so low as to be almost on the floor.

Class B (Members) is for architecture, and is not a very strong one. The silver medal is not awarded, but the bronze is taken by Mr. John H. Gear, for "The Choir, Westminster Abbey." Class C (Portraiture and Figure Studies, including animals) is a very small one, and no awards have been made. No. 118, a charming picture by Mr. Gear, is entitled, "Que voulez-vous, M'sieu?" It represents a pretty French peasant girl, leaning with her hands upon a table, which is covered with fruits. Her attitude, her expression, even her lips, seem to be actually asking the question which forms the title of the picture. Indeed, there is no need for any title. We congratulate Mr. Gear, and hope for more pictures like this. No. 119, "Sighting the Fleet," is a "dusky-type," and makes one wonder how she could possibly sight the fleet or anything else in such a fog. No. 112 represents some sheep, also in a fog. No. 114, "A Helping Hand," by Mr. A. F. Frost, is a very nice little picture, showing careful and artistic treatment. Nos. 117 and 124 are both "Beef-eaters," and both good; they are by Mr. Cricks and Mr. A. E. Bailey respectively.

In Class D (Enlargements) the silver medal goes to Mr. Tom Symmons for "Winter" (No. 135); while the bronze is taken by No. 128, a "Sunset," by Mr. C. A. Russell. Class E consists of lantern slides. Mr. A. E. Bailey takes the silver, and Mr. H. E. Farmer the bronze medal. There are three open classes, comprising a large number of pictures, many of which have figured prominently at previous exhibitions. We should like to know why two prints of Mr. Wellington's "Eventide" are exhibited, one of which wins for him another silver medal? Mr. W. Thomas also takes a silver medal for his "Sunset," No. 178. No. 208 wins a bronze medal for Mr. L. C. Bennett; and No. 275 takes another for Mr. J. H. Anderson. Mr. J. B. B. Wellington's pretty picture, "An Evening on the Thames, Twickenham," and "Reverie," by Mr. R. J. Tomlin, deserve attention. Space will not permit us to more than mention the names of Messrs. H. P. Robinson, J. W. Spurgeon, S. Bourne, R. S. Webster, Wm. Howell, and G. A. Taylor, whose works are all good, the last-mentioned sending a picture called "Autumn," an example of diffusion of focus used with good effect, and Miss Emily Golledge, who contributes admirable work. Mr. R. S. Webster takes a bronze medal for No. 368; Mr. Horsley Hinton another for Nos. 414 and 415; and Mr. Shapoor Bhedwar's "The Voice of Silence" wins him a silver medal.

In the Open Lantern Slide Class Mr. Geo. Hawkins takes a silver medal; and an extra silver goes to Mr. Paul Martin, the bronze medal not being awarded.

In the Apparatus section, Mr. H. Park, Mr. B. J. Edwards, Mr. W. B. Whittingham, and Mr. Chas. Shaw have large and interesting exhibits, which help much to make the show attractive.

Altogether, we must congratulate the Leytonstone Camera Club on a very good exhibition, and hope each year will continue to mark progress.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

AT a meeting, held on Wednesday, October 11th, Mr. F. S. Lewis stated that in order to overcome the tendency to vibration when using large size hand cameras he had devised a unipod, which he exhibited. This, essentially, was a telescopic cane, in the handle of which was arranged a series of springs to which was attached a circular piece of canvas. Upon removing the cap these springs were liberated, stretching the canvas out in a circle of about ten inches in diameter, and, by placing the camera upon this, Mr. Lewis said he was sure to have a steady camera. In the end of the cane Mr. Lewis carries a second section, which raises the height of the unipod to about six feet. The whole was very compactly put together, and when closed was slightly larger than an ordinary walking cane. The scheme is an adaptation of the walking-cane chair.

Dr. C. L. Mitchell exhibited a sample of flexible steel tubing which he had secured in London last week. He stated it was made out of a ribbon of sheet steel, which is run through a machine similar to a crimping machine; that it was made in various sizes, from ¼ to 2½ inches in diameter, and that the ¼ inch size, which he exhibited, cost about 8 cents. per foot, which is cheaper than rubber tubing, and infinitely more durable. The smaller sizes he found had a fine rubber band running through the joints to make them tight, but this is not found in the larger sizes. He thought it would be valuable for use in lanterns and for other purposes.

Mr. Rosengarten asked Dr. Mitchell if the strength of the tubing had been tested, and he replied that the heavier or larger sizes had been used for steam purposes very successfully, withstanding a pressure of 200 pounds to the square inch.

Mr. William N. Jennings exhibited a most interesting series of lantern slide views, which he had taken from a balloon during an ascension on the 4th of July last.

Mr. Jennings prefaced his exhibition with a few remarks upon the attempts that had been made in "balloon photography." He stated that it had always been his ambition to go up in a balloon, and upon consulting with the noted aeronaut, Mr. King, was very much surprised to hear that "balloon photography" had been attempted by a Mr. Black, at Richmond, during the Civil War, in the endeavour to secure pictures of the enemy's forces. Mr. Black at that time took a snap-shot upon a wet plate, and was very successful in securing a good negative, which was, unfortunately, ruined by the escape of gas from the balloon. Outside of this attempt very few efforts were made in America to secure photographs from a balloon until 1890. On the 4th of July of that year Mr. Jennings endeavoured to make an ascent with Professor King, but owing to the gas being adulterated it was deemed inadvisable to make the attempt with the additional weight of "a photographer and camera," and the effort was given up. In September of that year, however, Messrs. Moore & Doughty, of Winsted, Conn., succeeded in making some very fine cloud studies from a balloon. Mr. Jennings made his first trip with Professor King, from Fairmount Park on 4th of July, 1893, which was very successful. Mr. Jennings' second attempt at "balloon photography," from the World's Fair ground, in September, 1893, was unsuccessful, owing to the collapse of the balloon just prior to starting. Mr. Jennings' views were much applauded, especially the enlargement of the Girard College, which was made in order to show the detail that could be secured in snapshots at such a height. Mr. Jennings was of the opinion that with a tele-photo lens the detail would have been sufficient to enable people on the Girard College grounds to be easily discerned, but in his pictures this was impossible, even with the aid of a powerful glass. The height at which the pictures were taken ranged from quarter to 1½ miles, beyond which point there seemed to be an atmosphere between the balloon and the earth which made it impossible to secure good results.

THE PRACTICAL TESTING OF PHOTOGRAPHIC OBJECTIVES.*

BY DR. AD. MIETHE.

THOUGH it is of great interest to the optician to obtain an exact knowledge of all the properties and faults of any photographic system by numerical calculation, it is generally sufficient for the photographer, whether professional or amateur, to form a rougher idea of the capability of any photographic objective. The following is intended to aid the amateur to determine by comparison, without any particular apparatus the capabilities of lenses, and it may be mentioned at once that this examination is just as exact (and much more comprehensible with regard to its results) as the measurements obtained by the use of the so-called testing apparatus.

For all examinations of photographic lenses the maxim must be laid down, that only lenses of exactly the same character may be compared together, and that, above all, their constants must be decided. We take it for granted that the amateur knows the simple methods employed for ascertaining the focal length and the working aperture, and thereby the intensity of the instrument. We therefore have only the following questions to decide :—

1. Which instrument with a given aperture not too small for instantaneous photography gives the largest area of sharpness?

2. Which instrument gives the most even illumination of the field within this area of sharp definition?

3. Which instrument gives negatives with the greatest absence of fog?

4. Which instrument gives with the largest stop the largest area of sharpness?

All other questions which may be proposed in comparing objectives are useless; for instance, it is often said that this or that instrument possesses a greater depth of definition than another. We know, however, that this depends solely on the strength of lighting, at least, in so far as concerns the centre of the field.

Our first question must therefore be settled, because upon the utilisation of the sharpness with the largest aperture depends the applicability of the instrument for instantaneous work. The test is very simple. Supposing two lenses are to be compared, one with the greatest illuminating power of f/8, the other of f/7·3, we should commence our work by stopping down the lens of f/7·3 to f/8, in order to equalise the conditions under which both lenses work. If a suitable stop were not supplied with the lens it could be easily made of blackened cardboard or tin. We now screw the lens to the fixed apparatus, which must be reliable as to keeping the surface of the screen and of the sensitive plate vertical to the axis of the lens. We then focus a distant object perfectly sharp, for which purpose it is best to use an achromatic magnifying glass placed upon the centre of the focussing screen. The best object for this purpose is a so-called test-screen (a flat wall about ten feet square would do), which is completely covered with a net of lines, printed pages, geometrical designs, silhouettes, &c. The objective must not be too near this screen; the distance must be at least fifty times that of the focal length. Care must be taken that the apparatus is so placed that the axis of the lens is directed as perpendicular as possible to the surface of the test-screen. Should the focussing not result in an absolute sharpness at the middle of the field with the stop employed, it is necessary, by introducing other stops, to find out the largest aperture which will give perfect sharpness, and to insert a corresponding stop in the other objective. When in this way we have focussed the centre with the greatest possible accuracy we proceed with the exposure. For this purpose it is best to use a plate of very fine grain, such as a transparency plate, and to expose for as short a time as will suffice. This done we fix the other objective without changing the position of the camera, and take a second photograph with the same length of exposure and relative aperture. It is important that both exposures are of exactly equal duration, and that the plates are developed together in the same tray. From the plates so obtained various things can be ascertained by examining them on a retouching desk with a magnifying glass, starting from the centre, and marking those points where sharpness is just appreciably beginning to fall off. That objective which gives the larger part of the image in sharp definition is the more perfect one, because the object was photographed under the same angle in both cases. But a further examination of the plates gives us at once an answer to our second question—viz., which of the two objectives gives the more even illumination of the field. It is easy to notice, especially if the exposure was a comparatively short one that the density of both negatives decreases from the centre to the edges of the plates. The more rapid this decrease is the less suitable is the lens for instantaneous work.

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* Read before the Photographic Congress.

If we now repeat this comparison test of the two objectives with a very small stop, say of *f*/40, we can form an idea of the capability of the lenses for all such cases in which it becomes necessary to employ a small stop, whether to obtain depth of definition, to improve the definition at the edges of the field, or to prolong the exposure.

It will frequently be found that the proportionate advantage of one instrument over the other in the first trial proves to be the reverse in the second. So it may happen that an objective which with a full aperture shows poor definition at the edge of the plate, and which for this reason would be declared to be inferior to the other, may, if worked with a small aperture, prove vastly superior to its rival. In estimating the values of the competitive lenses it is therefore necessary to consider for which special purpose they are intended to be used. For instantaneous photography the preference will always be given to the lens which, with a full aperture, gives the largest area of good definition; while that lens is the best for landscape photography which with a rather small stop gives sufficient sharpness over a wide angle, with a fairly even illumination of the picture.

(*To be continued.*)

CORRESPONDENCE.

DEVELOPMENT OF GELATINO-BROMIDE PAPER.

Sir,—In reply to Mr. Woodbury's letter, will you allow me to say that I frankly accept his explanation, but, at the same time, would like it to be clearly understood that I was not aware of his experiments, and therefore derived no hint or assistance of any kind from them. Nor have I since been able to succeed with iodide.

The whole affair seems to have arisen from a series of curious accidental coincidences, combined with a little indiscretion on the part of Mr. Woodbury: but, as he has now so fully and handsomely admitted our claim to what I must still hold to be the only practicable method, I trust that no more need be said. For my part, I am quite content to bury the hatchet. R.I.P.

A somewhat injudicious friend of Mr. Woodbury, who has been making a little sensational "copy" out of the incident, sees no novelty in the process, because, in the year 1881, Dr. Eder described how gelatino-chloride paper for development (not printing out) might not only be made from a chloride emulsion, but also by the roundabout process of sensitising chlorised gelatine paper on a silver bath and then washing out the surplus silver, or converting it into chloride by floating again on a bath of sodium chloride.

There may possibly be some connection between this and the new process, but I am somehow tempted to think of Tenterden Steeple and the Goodwin Sands, or to wonder whether any modern shipbuilding patents might be upset by showing that one Moses a good many years ago, published a description of how a gentleman named Noah built an ark. Wm. J. Wilson.

Paget Works, Watford, Nov. 20th, 1893.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert Haddan & Co., of 18, Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

21,071. Henry Harris Lake, 45, Southampton Buildings, Chancery Lane, London.—"Improvements in Photographic Shutters" (Eugene Hanan, France).—*November 6th*, 1893.

21,127. Alfred Joseph Dewey, High Street, Sidcup.—"A Combined Spring Catch and Lock for Photographic Dark Slides."—*November 7th*, 1893.

21,258. Frederick Richard Boardman, 433, Strand' London.—"Improvements in Reflectors for Photographic Purposes."—*November 8th*, 1893.

21,276. James Yate Johnson, 47, Lincoln's Inn Fields London.—"Improvements in Iris Diaphragms for Photographic Objectives and in Mechanisms for using same as Objective Shutters" (the Firm of Carl Zeiss, Germany).—*November 8th*, 1893.

21,282. John Edward Thornton and Edgar Pickard, Altrincham, Manchester, "Improvements in Dark Slides for Photographic Cameras."—*November 9th*, 1893.

21,371. Henry Fearn Studds, Ashtead, near Epsom. "An Improved Mount of Photographic Prints."—*November 10th*, 1893.

21,379. Andrew George Adamson, 154, St. Vincent Street, Glasgow, "Improvements in the Application of Electric Light for Photographic Purposes, and Apparatus therefor."—*November 10th*, 1893.

21,476. Andrew George Adamson, 154, St. Vincent Street, Glasgow, "Improvements in and connected with the Developing of Photographs."—*November 11th*, 1893.

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Dry Collodion Plates.—Some weeks ago we commented upon the plates issued by the Birmingham Dry Collodion Plate and Film Company for ordinary negative work. We have since had an opportunity of giving the lantern plates of the same company a trial, and we have to report that they are of excellent quality. They are much quicker than the ordinary gelatine lantern plate, which is an advantageous feature where dense negatives are under consideration, and where reduction in the camera would otherwise entail grievously long exposure. With a normal whole-plate negative, reducing the same to lantern size, and employing *f* 22 stop in very dull daylight, we found two minutes to give ample exposure. To those unused to collodion work, the image will seem to flash out with dangerous rapidity, and the operation of development too quick to be satisfactory. But they will find plenty of density, and if not the image can be built up under intensification in a manner as strange to him as it is pleasing in effect. These plates have several advantages, chief among which we may note that the developer is applied without any previous manipulation of the plate, and that a slide can be exposed, developed, fixed, dried, and mounted for use in little more than ten minutes.

REVIEWS.

Photography at Night. By P. C. Duchochois. (*New York:* Published by the Author.)

This little book describes the different methods by which magnesium powder, alone and in combination with chemical agents, may be ignited so as to produce the greatest amount of light. There is a chapter on portraiture, another on copying, while others are devoted to enlarging, the making of transparencies, &c. The volume goes over part of the same ground covered by Hepworth's "Evening Work," and by other books which have been published in this country. But, for all this, it discovers new features, and will be found useful by many workers.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

November 16th.—Mr. G. W. **Atkins** in the Chair.

Mr. P. **Everitt** asked whether those who had worked the carbon process found, as he did, a difficulty in obtaining vigour in the print. He noted that the bichromate he used, and which had been obtained from a chemical house, was of a deep red colour.

Mr. A. **Mackie** had often used it red without affecting the success of the printing.

Mr. W. E. **Debenham** said that where the surface of the crystals of bichromate was scratched by rough handling the colour appeared paler than that of the pure clear crystals. At one time he had found great difficulty in obtaining vigorous prints, and attributed that to the make of tissue then supplied. Tissues varied very much in this respect. He inquired what was the make that Mr. Everett had in mind.

Mr. **Everitt** replied that it was the "sepia tissue."

Mr. **Debenham** suggested that the "engraving black" should be tried. He had some of that just now which gave very vigorous prints. He also advised the use of a sensitising bath of 3 per cent. instead of 5 per cent.

Mr. R. **Child Bayley** said that Mr Burton, of the Autotype Company, had advised keeping the tissue until nearly insoluble, in order to get vigour in the print.

Mr. **Mackie** would have expected that proceeding to result in the other direction.

Mr. W. J. **Rawlings** inquired whether any members had had experience with Dr. Hill Norris's collodion plates. He had found the image very weak, but the clearness of the shadows would be a great recommendation for the work for which he required them, if he could get intensity.

Mr. **Child Bayley** said that it was necessary to carry development on to a considerable amount of density, because so much was lost in fixing. The film was much tougher than with ordinary collodion, and consequently it was liable to scratch, but for lantern plates the tone was not so good.

Mr. **Debenham** suggested hydroquinone development.

Mr. J. S. **Teape** had had no difficulty as to density. He found that the plates were very much more sensitive than ordinary lantern plates. Half an inch of magnesium burned at a distance of one foot he had found about right for an ordinary lantern plate, but with the Hill Norris plate that amount and distance gave a very much over-exposed result. Burning at a distance of seven feet gave about the right exposure, which indicated a sensitiveness at least ten times as great.

Mr. **Child Bayley** had found an average exposure with an ordinary gas burner to be three seconds at a distance of eighteen inches.

Mr. **Teape** said that it seemed to him that the plates did not have nice gradation. The surface was so tough that it would bear brushing without injury while wet.

Mr. **Child Bayley** said that a formula had been published in the French journals, for which the writer claimed a sensitiveness of 18 Warnerke. The plates were immersed in a solution of gelatine, and kept therein for about an hour.

Mr. E. W. **Parfitt** inquired as to the best way to avoid showing the grain of the paper when copying a photograph.

Mr. **Teape** suggested the use of a mask, with a hole cut in it to allow the lens to pass through.

Mr. **Freshwater** would recommend that the print be squeegeed into optical contact with glass, and copied through it.

Mr. **Debenham** referred the inquirer to a paper on "Avoiding Reflections and Granularity in Copying," read before that Society in 1884, and published in the Photographic News of that year.

N.A.P.P.

On November 3rd, several meetings were held in connection with this Association. It was decided to make use of the advantages offered by holding the same at Coleman's Hotel, where the "Central Photo Club" have taken up their quarters.

At the Council meeting the chair was taken by Mr. **Thos. Fall**, the President, who has taken such an active, practical, and unselfish interest in all matters relating to this Association, and, indeed, in all things relating to the welfare of the entire photographic profession.

Mr. **Fall** reported the very agreeable result of his visit to the Photo Department, London Polytechnic Institution, as representing the N.A.P.P., that he had been heartily welcomed by the official staff of the Institution, and it afforded him great pleasure to state that he had reason to believe that the "certificates" of the Polytechnic Institution (some eight up to now) were of a practical and valuable nature.

The paper prepared by Mr. **Thos. Gill**, Colchester, on "Certain Aspects of Modern Photographs," was read at the World's Photo Congress, Chicago.

Respecting "insurance" and the present rather anomalous arrangement, whereby professional photographers only recover about one-fourth of their actual loss on negatives destroyed, and the difficulty of "proof" of actual loss, it was suggested that if a book were kept by the insurer, with an account of the "renewal" orders from old negatives, an average of one year, or a series of averages, could easily be proved, and would be a valuable business record.

The claims of the Photographers' Benevolent Institution were brought before the meeting, as advocated by Mr. Snowden Ward.

A circular issued by several important photographers, proposing that "a fee should be charged for all *copyright* photographs reproduced in any illustrated paper or periodical, that the minimum charge should be one guinea, and that the name and address of the photographer should be legibly printed under such impression," was brought to the notice of the Council, and the Secretary (Mr. O'Neill) was instructed to communicate to the gentlemen signing the circular the opinion of the N.A.P.P.—that the Council respectfully requested the co-operation of those gentlemen with the N.A.P.P. for the attainment of that object, or of any other proposal affecting the welfare of the profession, and promising the weight and influence of the Association in aid of any such endeavours.

The continued practice and exposure of the "Free Portrait Swindle" in various parts of the world was alluded to.

Some thirty professional photographers, also Mr. and Mrs. Snowden Ward and representatives of the photographic press, availed themselves of the generous and kindly invitation of Mr. Thos. Fall (London), the President of the N.A.P.P., to a friendly tea and social gathering. The catering and arrangements gave universal satisfaction to the visitors. A hearty vote of thanks was passed to Mr. Fall for his hospitality, proposed by Chevalier Lafosse (Vice-President), and supported by Messrs. Birtles. Warrington, Gill, Colchester, Keen, and Burton.

At the general meeting, which was well attended. Mr. Fall read a paper, addressed to professional photographers, full of interesting matter, and containing many practical hints and suggestions to them in the management of their business; to the younger members kindly advice, given fully, heartily, and unselfishly.

Brixton and Clapham Camera Club.

At the last meeting, held on Tuesday, the 7th inst., the chair being occupied successively by Mr. R. G. F. **Kidson** (Treasurer), Dr. J. **Reynolds** (President), and Mr. F. **Goldley** (Vice-President), the Club settled details with respect to the forthcoming Club Exhibition, which will be held at the Florence Rooms, Coldharbour Lane, Brixton, from Thursday, January 25th, to Wednesday, January 31st, 1894, both days inclusive. There will be no open class, and prints will not be divided into classes, as on former occasions. It was decided to invite Messrs. Pringle, Cembrano, Colonel Gale, and Mr. Warnerke to act as judges, giving them full power to award or withhold medals as may seem best in their judgment, the only restriction in the matter being that not more than two medals shall be awarded to any one exhibitor. Full particulars and tickets may be obtained from any member of the Club, or of the Hon. Sec., Mr. B. E. Pinder, 7, McDowall Road, Camberwell, S.E.

Subsequently a paper was read and a demonstration on "Enlarging" given by Mr. **Butler**, one of the members. An enlargement, 12 in. by 10 in., was successfully made from a half-plate negative, the enlargement (on Morgan & Kidd's bromide paper) being developed with the following formula:—

Amidol	2 grs.
Sulph. soda	24 ,,
Brom. potass.	1 ,,
Water	1 oz.

Next meeting, November 21st.—"Skies." Mr. W. **Thomas**.

West London Photographic Society.

Ordinary Meeting, Tuesday, November 14th.

Mr. J. C. **Dollman** delivered an address on "Figure in Landscape." After stating that the disposition of figures in a picture is mainly a matter of feeling begotten of the occasion, Mr. Dollman proceeded to deal with the title-subject under the three headings, *Why*, *Where*, and *How*.

Why have a figure at all? The landscape may possess a charm apart from "human interest." If figures be admitted into the picture they should be of secondary interest, subordinate to the principal idea. The figure may assist in intensifying the meaning of the subject, as a man struggling before the storm conveys the idea of wind, or a figure or group may give balance or point to the subject. Turner is the source of the highest instruction on this point.

Where? Genius is often an instructive guide. In photography the relative value of the figure is sometimes miscalculated, and the focussing screen giving the image upside down seriously handicaps the photographer. A suggestion put forward by the lecturer was that the landscape should be photographed first and a print taken. The print could then be examined at leisure, and the question of where the figure should come thought out. Subsequently the scene could be re-photographed with the figure in the position decided upon. Though troublesome, this plan should prove efficient, and it would give photographers the opportunity of showing what art they possess. The best place for figures is in the space between the mid-distance and the near foreground of the landscape, though a figure quite in the distance may be the making of a picture if judiciously introduced.

How? In posing your models don't overdo it. Learn the value of restrained power, simplicity, and suggestion. *Never do it all.* Leave something for the spectator to do. Provoke inquiry, curiosity, fascination, *and gratify it.* Avoid the commonplace. Seek for simple unaffected occupation for your figures. Figures in motion should have more space before than behind them.

Study variety in posing your models. Rather let the models pose themselves at your instruction, and seek for grace in disposing them. If the *pose* is *easy* it will be graceful. Shun the conventional. A sympathetic model is alone the kind to employ.

The lecturer concluded with some humorous references to the conventional costume of the day, with especial reference to men's clothing and the aburd persistency of the top hat.

Hackney Photographic Society.

November 14th, 1893.—Mr. **Robert Beckett** in the Chair.

Members' work was shown by Messrs. Roofe and Sodeau. Several members showed specimens of lantern slides printed upon the new Barnett plates. The results were very good, and included a great range and variety of tone.

Mr. **Roofe** showed prints of printing-out Paget and P.O.P. papers, toned with 1 oz. and ¼ oz. acetate of lead respectively. There appeared to be no difference in results. The prints required a little deeper printing than for sulphocyanide toning.

Mr. **Sodeau** showed a platinum print torn in four pieces toned with uranium to warm tones, three quarters being toned to 1½, 3, and 12 hours respectively. The tone that pleased most was that subjected to 3 hours' toning.

Mr. **Smith** asked if there was any remedy for reducing an over-printed P.O.P. print to a normal print.—Farmer's reducer was recommended.

Mr. **Barker** asked how long Alpha paper would keep under ordinary circumstances.—Mr. **Beckett** stated he had used it five to six years old.—Mr. **Roberts** said he found the edges turn yellow after keeping some time.

Mr. H. M. **Smith**, of Messrs. Eastman's, then proceeded with a paper upon enlarging generally, and dealt with some very interesting points in connection with same, illustrated by diagrams. A demonstration was then given, and some excellent results were obtained.

Woodford Photographic Society.

Informal Meeting, November 16th.

Among the items of interest were some lantern slides shown by Mr. **Malby**, which very strongly emphasised the influence of temperature on development. Two plates exposed by artificial light under ordinary conditions of working refused to develop satisfactorily, though development was prolonged for three-quarters of an hour. On testing, the temperature was found to be about 47°. Two more plates, similarly exposed, produced most satisfactory slides in a developer identical in composition, but at a temperature of 68°. The PRESIDENT showed a bottle of pyro solution (with sulphite of soda) mixed in April, 1888, with some plates exposed under a Warnerke sensitometer, and developed with the solution and one freshly mixed respectively. When the temperature of development was 70° no difference could be seen between the two ; when at 55° there was a slight difference in favour of the freshly mixed solution.

A discussion on "The form that the work of a photographic society should take in order to be of the greatest assistance to the younger members," was opened by Mr. H. T. MALBY, who said that the first few steps in photography presented the greatest difficulty. If initial difficulties were thoroughly mastered a sure step had been taken on the road to success. In development it was useless to lecture, and not of much value to criticise plates after they might be spoiled. In order to teach a young photographer how to develop a negative, it was necessary for a more advanced worker to take him patiently through the actual work. A beginner could never tell when to stop development, and it was impossible to teach this other than by practical demonstration. He offered to give such assistance to any of the members of the Society who desired it, at Saturday evening meetings specially arranged for that purpose, the same afternoons being utilised for outdoor work, when assistance in exposure, management of camera, composition, &c., could be given.

Next meeting, December 7th, Mr. H. T. MALBY on "Copying."

PAISLEY PHOTOGRAPHIC SOCIETY.

THE following ordinary and special meetings of the Society will be held during the months of November and December, in the Rooms, commencing each evening at eight o'clock :—

November 14th (Tuesday).—"Bromide Printing." Mr. DAVID B. JACK.

November 16th (Thursday). — South African Lantern Slides.

December 5th (Tuesday).—"A Holiday in Switzerland." Illustrated by slides. Rev. JOHN CROUCH.

December 20th (Wednesday).—*Amateur Photographer* 1893 Prize Slides.

The meetings on November 14th and December 5th are the ordinary monthly meetings, at which the minutes will be read and business transacted.

The Council wish to remind members that the following photographic papers are now constantly on the table in the rooms :—*Photography*, *Photographic News*, *Amateur Photographer*, *Photographic Work*, *Lantern Journal*, *Hand Camera and Lantern Review*, *The Practical Photographer*, *Scraps*, *&c.*, *&c.* As it is their intention to add one or two of the leading monthlies, they invite members to make offers to purchase, so that the increased expense may be met.

The syllabus of the approaching eighth annual exhibition, to be held in February, 1894, will shortly be issued, and it is hoped it will meet with the hearty support of the members by good competition in all the classes.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, November 14th.—Mr. G. F. LYNDON in the Chair.—About thirty members present.

IN continuance of the series of one-man exhibitions, Mr. J. T. MOUSLEY showed a large number of very fine photographs illustrating his methods of working The prints, which were mostly of architectural subjects, showed great skill and care in selection, and were of splendid technique. They illustrated many methods of printing, some fine sepia tones on gelatine paper being especially admired. Mr. Mousley also gave some valuable hints as to mounting and framing, some novel frames being laid on the table.

NOTTINGHAM MECHANICS' INSTITUTION CAMERA CLUB.

A MEETING of the members, under the presidency of Mrs. COWEN, was held in Room No. 75, at the Institution, on Wednesday, November 15th.

After the minutes were confirmed, and new members were nominated and elected, the Chairman called on the Hon. Sec. to introduce the demonstrator, Mr. MORGAN, who attended on behalf of Messrs. Fuerst Bros. to demonstrate with the new developer, "Metol."

Mr. Morgan first developed a plate which had received half the ordinary exposure He then was given a severe test, being set to develop a plate which a member of the Club had exposed that afternoon ; the exposure given was *f* 11 for one-twentieth of a second. The demonstrator came out of the experiment in a very successful manner, showing a negative which, although thin, was full of detail. After which, the methods of printing and developing both lantern slides and bromide prints were shown in a practical manner.

Votes of thanks were accorded to Messrs. Fuerst Bros. for arranging for the demonstration, and to Mr. Morgan for the able way in which he had conducted the demonstration, and replied to the questions asked.

Future fixtures :—December 1st : Exhibition of "Photography" American Slides (1893).

KINGSTON-ON-THAMES AND DISTRICT PHOTOGRAPHIC SOCIETY.

AT a meeting held at the Albany Hall, Kingston-on-Thames, November 17th, 1893, it was decided that the membership of the Society be opened to all interested in photography, whether ladies or gentlemen, and that the annual subscription be half-a-guinea. The Rev. G. I. Swinnerton was appointed President ; Dr. Finny Kenlis, Kingston Hill, Hon. Secretary ; Mr. Robertson, Hollingbourne, Surbiton, Hon. Treasurer ; and the following the Committee :— Mr. C. E. Abney, Kingston Hill ; Dr. Cowen, New Malden ; Mr. Albert Hill, Surbiton ; Mr. Lemarchand, Kingston ; Mr. Price, Hampton Wick. The next meeting will be held at the Albany Hall, on Friday, December 1st, at 8 p.m.

PUTNEY PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, Thursday, November 16th.—Dr. J. F. FARRAR in the Chair.

MR. S. HERBERT FRY, having been unable to prepare the necessary prints to illustrate his promised paper on "Unconventional Printing Methods," was compelled to postpone that subject until a subsequent meeting, substituting a demonstration on the Paget Prize Company's print-out papers and lantern plates. A hearty vote of thanks terminated a pleasant evening.

Glasgow and West of Scotland Amateur Photographic Association.

Ordinary Meeting, November 20th.—Mr. W. J. B. Halley (President) in the Chair.

Twenty-one new members were elected.

Mr. Victor L. Alexander demonstrated printing on "Nikko" paper, and gave his experience as to time of exposure for printing and enlarging. He showed excellent enlargements made on this paper, and finished with a matt surface.

Mr. Wm. Goodwin read a paper on "The Factors that affect Exposure," stating the limits within which these factors may be expected to vary, and showing how tables of exposure are constructed.

An exhibition of members' lantern slides terminated the meeting.

Kilmarnock Amateur Photographic Society.

The ordinary meeting was held on November 15th.

The President (Mr. Ferguson) gave a highly successful demonstration on the making of lantern slides. Mr. Ferguson uses hydroquinone at its normal strength for development. He has made a collection of over 200 slides illustrative of incidents and places in the life of Burns, Scotland's poet. Those who are competent to judge say that there is not a finer collection extant.

It was agreed that in future the meetings be held on the third Friday of the month.

Mr. Millar Banker is to give the next demonstration, the Oddfellows' Buildings, John Finnie Street, on Friday, December 15th, at 7.30 p.m., subject—"Gelatino-chloride Paper, including the Paget Prize Paper for Development."

A very interesting and instructive programme has been drawn out for this session, embracing such subjects as printing on Alpha paper, carbon and platinotype processes, enlarging, preparation of blocks for newspaper work, &c. The subscription is five shillings per annum. Secretary: Mr. William Paterson, Teacher, 50, St. Andrew's Street.

West Surrey Photographic Society.

Wednesday, November 15th, 1893.

Enlargement was the subject under discussion at the above Society's fortnightly meeting.

The Secretary (Mr. Seward) described the working of the Society's daylight enlarging apparatus, which was followed by a paper read by one of the members, Mr J. Agars, on "Direct Enlargement on Bromide Paper," after which Mr. Agars practically demonstrated the subject by the aid of the Society's optical lantern.

In order to induce members to benefit by the above lecture and demonstration, it is intended to hold a competition between members, in enlargement, on the 21st February next.

Messrs. Arthur Schwarz & Co. are about to place upon the market Dr. Andresen's fixing salt, made up in bars and cartridges, and devised to replace hypo. For some time the advantages of using an acid fixing bath have been proclaimed by many, but the trouble involved in its preparation have deterred a great number of photographers from employing it. Dr. Andresen's fixing salt is intended to meet this want and obviate the difficulty. It is easily and quickly dissolved, and is far less bulky than hypo. It not only fixes, but clears and hardens the gelatine surface, and it possesses other advantages which commend it to the attention of photographers. A four-ounce bar will make a quart of fixing bath.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

M. B.—The failure is, we think, due to imperfect fixation and washing of an unusually thick film; such a film, in fact, that is only produced by the non-professional plate coater. Try a few minutes' immersion in the following bath, as a prelude to intensification:—

Peroxide of hydrogen (20 vols.) ...	... 1 drachm
Water...	... 5 oz.

Thoroughly wash and intensify.

K. (Brighton).—There is no need to use a small stop in reducing from a negative for lantern-slide work, that is, if the lens you are using is a decent one. You will get more uniformity of result if you renounce daylight and use a condenser and artificial illumination. Gas or paraffin will do well. We will give you more particulars if you need them.

Minos.—To make a graduated background is not easy, unless you are acquainted with the use of distemper and brush. Of course oil flatting will do as well, but the surface is more troublesome to prepare. You will save time, trouble, and, we think, expense, by buying one straight away. Marion & Co. could supply you with a textile fabric, graduated in the loom, for this especial purpose. There are other convenient devices to be had. Look around for yourself.

C. C. C.—If you suspect that the negatives are intended for a fraudulent purpose, wash your hands of the transaction at once, or give information to the police.

Caradoc.—The grain is due to the ground glass, or tissue paper, with which you have backed the negative during the copying process. Move it further away, so as to throw it out of focus, and the difficulty will disappear.

A. H.—The yellowness is due to exposure to air during development or to forcing. Try longer exposure and more liberal allowance of liquid in the developing dish. The difficulty is not uncommon when hydroquinone is employed.

MacL.—The formula is almost identical with that of Edwards's glycerine developer, introduced something like twelve years ago. See back Year Books.

H. T.—Your camera is ingenious in design, but it plagiarises many of the features of other instruments. This, probably, is quite accidental. You will find, if you carry your ideas into practice, that the camera will have a want of rigidity, and will not stand the ordinary knocking about that a tourist camera is likely to experience. By using metal—say, aluminium—in place of wood, wherever possible, you would do much to obviate the fault.

Sunshine.—The great objection to the form of lamp you refer to is the employment of a burner which gives off carbon monoxide.

C. (Halifax).—The employment of an arc light for projection purposes in circuit with the general lamps of a large installation could not be recommended because of the constant variations of current common to the system, which would be manifested in irregularity of illumination. With a secondary battery all such variations would disappear. Yes; cored carbons are the best for the purpose.

Muckross.—About the first week in December.

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

PATENT OFFICE LIBRARY

Vol. XXXVII.—No. 1839.

DECEMBER 1, 1893.

NOTES.

We publish on another page a report of the inquest at Bradford on the body of the unfortunate lad who was killed by the explosion of a gas-cylinder. The matter is of such grave importance to both photographers and lanternists that a detailed account of the proceedings is necessary. It is proved that the cylinder which gave way was made of unsuitable, if not faulty, metal. The users of compressed gas will now be careful to ascertain that the cylinders which they employ are stamped with a recognised test-mark. No cylinder is filled or issued by the Brin Company unless it bears such a mark. No one in his senses would handle a firearm which did not bear a stamp showing that it had been duly *proved*, and the employer of compressed gas should exercise the same discretion with regard to his cylinders. While this unfortunate accident will suggest that care be exercised, there is no kind of reason why it should cause panic.

A contemporary suggests that cylinders of steel for compressed gas might be exchanged for vessels of indiarubber strengthened by canvas. It would be next to impossible to construct a vessel of such materials which would withstand the necessary pressure, and even if it did the gas would get through the stoutest rubber. The only material which would possibly meet the requirements—and we are by no means sure that it would—is the substance known as vulcanised fibre, which is much used by electricians as an insulator. It would be perhaps worth while to construct a cylinder of this material, and test its power of withstanding internal pressure.

Photographs have again and again proved awkward bits of evidence for criminals, and the latest instance of the kind shows how the evil-disposed should suppress all æsthetic craving for such works of art. A negro, named William Johnson, was recently arrested in the States on suspicion of being concerned in the robbery of a mail-bag containing between two and three thousand pounds' worth of property. Two photographs of a white woman and child were found upon Johnson when arrested, and he said that they were portraits of friends of his in Philadelphia. But it turned out upon inquiry that these two very photographs had been taken from a letter in the stolen mail-bag, and Johnson is more than ever suspected of having had a finger in the pie.

The advantage which a good process block has over a woodcut in the representation of a natural object was well shown in an action which came last week before the Westminster County Court. The claim was to recover the price of a block engraved for the defendant, a well-known veterinary surgeon. The picture engraved was of a certain high-mettled steed, named "Prince," and the defendant objected to pay for the block because the noble animal was represented thereon with a Roman nose, a short tail, and a short neck, all of which attributes belonged rather to the omnibus horse than the thoroughbred. Evidence was given that the defendant saw the drawing on the block before it was cut—but the defendant complained that it was then "inside out," by which he meant that it was reversed. But it was held that he had approved the drawing, and must pay for the block. Possibly by the time this lover of horses wants another picture of an animal, he will get it photographed and blocked by photographic agency.

Another bit of Old London—or rather of Old Chelsea—is threatened with extinction. The picturesque old river wall overarched by trees has long ago been replaced by the solid magnificence of the granite embankment. The hostelry of "Don Salteros" has gone. The old pile bridge at Battersea has disappeared, and now the Physic Garden, given to the Apothecaries' Company by good Sir Hans Sloane—that garden which is bound up with the history of botany in this country—is threatened with clearance, because the freehold is worth a few thousand pounds. Its cedar trees—only one is now left—figure in many a view of Chelsea Reach—but a photograph of the pleasant garden, with the statue of Sir Hans Sloane, we have never yet seen. Possibly more than one kindly hand will take a camera there before the work of demolition commences.

The Paris correspondent of the *Daily Telegraph* reproduced last week some interesting statistics relative to the sale of photographic portraits of celebrities in the French capital. The portraits of prominent men no longer sell well, and the reason given by the dealers is that people see them reproduced in the newspapers, and they are satisfied with that. Evidently they are either very easily satisfied, or the portraits are very much better done in France than they are in England.

On the other hand, pictures of actresses and other ladies who dress well are eagerly bought, not by the general public—not by admiring swains—but by the dressmakers and milliners of the second class in Paris and by all traders of this description in the provinces. They buy the photographs simply as studies, and middle-class matrons and maidens are also glad enough to seek inspiration at the same source. It has long been a puzzle to most persons to understand the genesis of a fashion. Whence does it originate? Although we cannot pretend to answer this profound question, we are now able to see that photography has an important share in the work.

Photographers in search of a novelty might do worse than follow the example of a New Jersey man who is taking five photographs of his sitters from different points of view at one operation. The *modus operandi* is simplicity itself. All you have to do is to place the sitter between two mirrors inclined at an angle of 45 degrees to each other, and the feat is accomplished.

The Survey Committee of the Manchester Amateur Photographic Society is steadily carrying out its self-imposed duties. It has now been three years at work photographing all that is topographically interesting in the city and suburbs, and up to the present one hundred and ten negatives have passed through the hands of the printer, and as four platinotype copies have been taken from each negative there are now four hundred and forty prints in the possession of the Society. The whole of these have been critically examined, and only those which possess historical value are kept.

We regret that in our recent notice of the Leytonstone Camera Club Exhibition, we wrongly described a very beautiful picture as being the work of Mr. J. H. Gear. The photograph is the work of Mr. Tom Symmons, and we herewith express our sorrow for the mistake.

Most lantern workers have been apt to vote the task of binding the glasses together a great nuisance. The adhesive matter will often refuse to stick without much expenditure of moisture and labour, and when the thing is complete the paper is very likely to separate or to exhibit early signs of wear and tear. Some time ago metal binders were introduced, but they did not quite come up to the worker's requirements, and they were somewhat troublesome in application.

Mr. Tylar, of Birmingham, who is most prolific of good things both for photographers and lanternists, has just introduced a new binder for which we prophesy extensive use. Instead of being paper it is black calico, and its maker describes it as the stickiest sticker yet invented. The same binder will be found useful for attaching negatives to opals for printing out and for mounting paper proofs on glass where the saving of a frame is a matter of importance.

The prizes, medals, &c., awarded at the Stanley Show, will be presented at the Bohemian Smoking Concert, to be held on December 9th, at the Royal Gallery of British Artists, Suffolk Street, Pall Mall. In addition to the presentation of medals and diplomas there will be a lantern display of the medal-winning and other slides. We are informed that the judges were unanimously of opinion that the pictures sent in to the various classes were of an exceedingly high degree of artistic merit.

By the courtesy of Mr. Welford we are able to announce the following additional awards in connection with the photographic department of the Stanley Show. The awards refer to the lantern slide class only :—

Gold medal………	W. Taverner.
Silver ,, ………	John H. Gear.
Bronze ,, ………	G. E. Thompson.
Diplomas ………	Robt. Frost, P. Martin, and John Carpenter.

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THE PRACTICAL TESTING OF PHOTOGRAPHIC OBJECTIVES.*

BY DR. AD. MIETHE.

(*Concluded from page 748.*)

An important test which is rarely resorted to, though it can be carried out with very little trouble, is the one referred to by question 3—viz., the examination as to the absence of fog—that is, the brilliancy of the picture produced by the lens.

There is formed in each lens, by the repeated reflections from its polished surfaces, a certain amount of false light, which under certain circumstances may cause more or less fogging of the plate and a conspicuous flatness of the picture. The test as to this property of the lens is very simple. Fix on to the centre of the focussing screen a piece of tinfoil or black paper of about the size of a pea, focus the objective sharply upon the horizon, and then step out with the camera into the sunshine. The lens must then be directed towards the sun, so that its image falls exactly on the tinfoil or paper spot. Now move the camera a little to and fro, and you will observe a number of luminous circles of various diameters, arranged in a straight line, which change their size and position according to the motion of the apparatus. These luminous circles are nothing else than conical pencils or rays of false light thrown by the lens upon the flat surface of the screen, and their size gives a clue as to the amount and harmfulness of the false light peculiar to the lens. If the size of the stop used for this purpose is taken as a unit, that objective must be declared superior in this matter of which the largest luminous circle is in proportion to this unit of the greatest diameter. Besides this that objective is generally the superior one of which the number of the visible luminous circles is the smallest and the increase of their diameters the quickest.

The ordinary photographic lenses of the aplanatic type generally show three or four, sometimes even six such luminous circles, if the operator covers his head with a focussing cloth in order to shut out as far as possible all extraneous light. Experience has shown that under unfavourable conditions the objective gives also a distinct spot of light, if the smallest of the luminous circles is of about six times the diameter of the stop. The objective of which the smallest luminous circle is about ten or fifteen times the diameter of the stop would be considered a very good one, and such lenses give very clear negatives.

The necessity for ascertaining by personal tests the values of the many types of objectives has lately become a very urgent one. The great variety of new types of objectives lately introduced by English and German opticians makes it very difficult for the photographer to determine which he will select. The modern anastigmats and the somewhat similar concentric lens of Schröeder have raised the standard of perfection, which may be reasonably required of an ordinary photographic system, to a very considerable extent, and it would therefore be useless to compare such instruments with older ones, such as aplanatic and symmetrical lenses at all; they are very much superior to them. But it is not so easy to decide the question as to which of all these new systems should be preferred. In Germany it is chiefly Zeiss and Goerz who claim to have produced the most perfect objective. Until lately the palm has been given to the Zeiss anastigmat *f*/6·3 as the undeniably best objective extant for instantaneous photographs; this position it has now, in our opinion, lost, as it is much surpassed by the new double anastigmat of Goerz, and in all cases where the illuminating power of this instrument is sufficient (*f*/7·7) it may deservedly be called the best of all existing objectives.

Quite recently, however, the firm of Zeiss have endeavoured to produce an objective, in the form of their new anastigmat *f*/8, to be equal in value to that of Goerz. It is perhaps not yet decided in how far the makers have succeeded. Certain it is that the new anastigmat of Zeiss *f*/8 is superior to the former Zeiss objectives, and only careful comparative tests will reveal whether it is equal or superior to Goerz's instrument. In any case this much can be said, that photographic optics have in the last five years made advances which before that period perhaps nobody would ever have imagined. A further essential improvement is, one might say, scarcely necessary. All the new instruments allow with an aperture of *f*/8, which is sufficient for nearly all purposes of instantaneous photography, the reproduction of a sharply defined picture with its greatest dimensions at least equal to the focal length of the lens. The old aplanats, however, remain very much behind this; they cover, according to circumstances, a plate of hardly two-fifths of their focal length with absolute sharpness.

Mr. W. E. Debenham had long tried to get photographers to examine their lenses, and had tried to show them how to do it. Many had got certain notions into their heads, particularly that some lenses had more depth of focus than others, and he hoped the paper would have the effect of inducing some of them to test their lenses for themselves. One point, perhaps, called for criticism. Dr. Miethe spoke of absolute sharpness. Mr. Debenham thought they should not use quite such an expression as that, because nothing was absolutely sharp. It depended upon the amount of power brought to the examination of a particular image whether it was found sharp or not, and therefore he thought it was better to fix some practical standard. He had suggested that a standard which would suffice very well for the purpose of comparing one lens with another, was to reduce a column of a daily paper to a certain size, preferably the column containing the Births, Marriages, and Deaths, as that contained a variety of type. He had previously decidedly expressed his opinion that the Zeiss anastigmats were superior to any lens that had preceded them.

The President remarked that the paper seemed a good practical one, and he hoped with Mr. Debenham that photographers would pay attention to it. He asked Mr. Debenham the exact diminution he recommended in the case of the newspaper test? It was a good practical test, and one easily carried out.

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* Read before the Photographic Congress.

Mr. Debenham had published the suggestion some time ago, but forgot the exact diminution he had mentioned.

The President said they knew that to test lenses, say for instantaneous use in a hand camera, required a great deal of thought, and on the whole he was of opinion that Dr. Miethe, had given them a good practical way of finding out what they wanted to know.

A vote of thanks was accorded to Dr. Miethe for his communication.—*Photographic Journal.*

THE GAS CYLINDER EXPLOSION.

RESUMED INQUEST.

THE Bradford Borough Coroner (Mr. J. G. Hutchinson), resumed his inquiry on Friday last into the circumstances attending the death of John William Fuller, aged fourteen, who was killed by the bursting of an oxygen cylinder at the Exchange Station, Bradford, on Wednesday, November 8th.

Joseph Gledstone, on November 8th, was going to the Great Northern Railway Station at about five minutes to six to proceed to his home. In Drake Street he noticed the deceased with two iron cylinders. He was carrying one on his left shoulder and dragging the other on the ground, having hold of it with his right hand. Witness walked behind the boy into the subway leading to the station, and before he reached the steps there was suddenly a loud explosion. Witness was not knocked down, but was much shaken. Witness at once stepped forward to the boy, who was lying on the ground dead, his head dreadfully injured, and there were fragments of one of the tubes strewn all about. The other cylinder was perfect. The cylinder which burst was the one which the boy was carrying on his shoulder. He saw the deceased drop the cylinder from his shoulder to the ground. There was a ring like a bell, and the explosion occurred instantly.

Superintendent Paul, of the borough police, said that half an hour after the explosion he went to the station. The body had then been removed and the pieces of the broken cylinder had been gathered up. He collected fourteen pieces from different persons and also a sound cylinder. On Saturday morning he submitted the pieces for examination to Mr. Morley and Professor Goodman, of the Yorkshire College, and Mr. Ellis, of Messrs. Thwaites Bros.

Mrs. Jackson, mortuary attendant, said that she attended to the body of the deceased. The head was shattered and the left arm was cut open right to the elbow. She removed two large pieces of iron from the body, one being embedded in the head and the other in the arm.

Albert Kershaw said he was unpacker for Messrs. Riley Bros, lantern outfitters, of Cheapside, Bradford, for whom the deceased also worked. The deceased was instructed to take to the Exchange Station two cylinders, one charged with oxygen and the other with coal gas, filled so far as he knew by the Manchester Oxygen Company.

Henry Dalby, Bradford, optician's assistant, said he was in the service of Messrs. Riley Bros. Last Wednesday week, about twenty minutes to six o'clock in the afternoon, he ordered the deceased to take two cylinders to the Exchange Station in time for the 6.7 p.m. train for Queensbury. They were intended for use that night. One cylinder was painted red and the other black. The one painted red was charged with coal gas and the black one was charged with oxygen. The cylinders were filled at Manchester by the Manchester Oxygen Company. He gauged both the cylinders about four o'clock the same afternoon, and found that each cylinder contained 120 atmospheres, which was a safe gauge. He had occasionally found cylinders a point over, but this point would be lost in the test and the cylinder would still be safe. He had knocked these cylinders about for four years and had never had an accident with them.

The Coroner: If the cylinder became bulged and its containing power was reduced, would not that increase the risk of explosion?—Witness: Yes.

Have you proper boxes in which to pack these cylinders?—No.

Supposing you had such boxes, would not that lessen the liability to accident?—Yes.

By Mr. Freeman: Each cylinder would weigh about 25 lbs.

By Mr. Morgan: The cylinders are supposed to be tested before they come to us each time they are revalved. The cylinder which exploded had been revalved by the Manchester Oxygen Company. I told the boy to meet me at the Exchange Station on the Queensbury platform with the cart and cylinders. When the cylinders come to my employers they are simply bare.

The Coroner: Tossed and thrown about?—Witness: Yes.

John Goodman, professor of engineering at the Yorkshire College, said that on Saturday last, in company with Mr. Morley and Mr. Ellis, he inspected the fourteen pieces of metal in the possession of Superintendent Paul, and also the sound coal-gas cylinder. Every piece was carefully examined. The fractures in every part were crystalline—coarsely crystalline in the portions of the bottom and top of the cylinder, but of finer grain in the centre. There was a peculiar fracture near the top of the cylinder, which was different in shape from any other fracture. This might or might not have been due to a flaw in the material. The point was a doubtful one, and opinions might differ. The spot was carefully examined, but he could not come to any definite conclusion. The fractured pieces showed bulging which might have been done in the accident. The thickness of the metal varied very much over the cylinder. It was impossible to avoid some little variation in making such cylinders, but he certainly thought the variation much greater than it ought to have been. In a well-made cylinder the variations would not be so great. He had only a limited knowledge of the manner of making such cylinders.

The Coroner: Would not the varying thickness of the metal be a source of weakness?—Witness: Yes and No.

If the thinnest portion was sufficient to bear the pressure, the variation of the thickness would be no weakness, but if the metal was so badly disposed that the thinnest portion was unable to bear the pressure, that thinness would of course be a weakness. The risk of bulging, Mr. Goodman went on to say, would certainly be greatest where the metal was thinnest. He took away to Leeds two pieces of the broken cylinder which he first had photographed. The pieces were then cut up into test pieces and subjected to a series of experiments. A sound cylinder supplied by Messrs. Riley as a duplicate was also handed to him, and this he caused to be cut into pieces, and found it as variable in thickness as the one which was broken. These pieces were also subjected to experiment, and the witness handed in a detailed report of the character of the tests inflicted and the results obtained. Steel ought not to be used of a greater tensile strength than thirty-two tons per square inch, and no boilermaker would dare to use it of greater tensile strength for internal pressure. The steel of the cylinder in question was very high indeed in tensile strength. In some cases it was over fifty tons per square inch. This in itself was not harmful, but it was always considered that steel of very high tensile strength was very brittle, and therefore unsuitable for internal pressure, especially when, as in the case of an oxygen cylinder, it was likely to be subject to much knocking about. The remedy, of course, would be to use material of great ductility. The steel actually used was, in his opinion, unsuitable for the purpose. The maximum thickness of the body of the duplicate cylinder was found to be ·242 in., and the minimum was ·164 in. In the cylinder which burst he found that the pieces varied from ·172 in. to ·205 in. in thickness, though he might perhaps find a thicker piece on examination.

The Coroner: You have heard the evidence that this cylinder fell from the shoulder of the deceased on to the concrete floor. Does that explain its bursting?—Yes; after looking at the figures of my experiments, which show how very hard and brittle the material is. Although the tensile strength is very great, it has very little ductility. If the material used were good material, there ought not to be the slightest danger of an explosion from such a fall on to the floor. This morning, before coming here, I took one of the cylinders which we are constantly using at the Yorkshire College, and dropped it 22 ft. 6 in. on to a cast-iron block. There was no explosion, and the cylinder received only a small dent.

In reply to further questions, witness said that the cylinder of which he had just spoken was charged with oxygen at the time, and it was charged by the same firm—the Manchester Oxygen Company — which filled the cylinder that burst. But it was a cylinder of different make to that which burst. He then took a cylinder similar to the one he dropped that morning and cut it up, and found that the thickness was—maximum ·232 in., and minimum ·178 in. A third cylinder was burst by hydraulic pressure, the bursting taking place at between 59 cwt. and 60 cwt. per square inch. These experiments confirmed his opinion that the material used in the cylinder which burst and killed the deceased was improper. The annealing of steel reduced the tensile strength somewhat, but increased its ductility and made it more capable of stretching without breaking. The annealing process was indispensable, and no cylinder ought to be sent out until it had been thoroughly annealed. With regard to tests, he believed that cylinders ought to be tested to a considerably greater extent than the working pressure, but he believed that it should not be as much as double the working pressure, as it was possible to permanently injure a cylinder in the testing.

The Coroner: Your opinion is that the cause of the bursting in this case was the defective material of which the cylinder was composed?—Witness: Yes; but I would hardly say "defective" material—it was unsuitable material, and if it had been annealed the chances of accident would have been very much less.—Witness went on to say that he did not think it could be said that there was any danger attending the use of a properly-constructed and annealed cylinder. There were probably some hundreds of thousands of these cylinders in circulation in the country, and this was the very first accident which had ever occurred from the breaking of an oxygen cylinder or "bottle." Of course, if the cylinder or "bottle" were made of unsuitable material, there would be serious danger.

In reply to Mr. Morgan, witness said there would be no outward appearance to indicate that the cylinder in question was of unsuitable material and had not been annealed, for the cylinder had been painted. At the Yorkshire College the cylinders used were not subjected to any test whatever, the makers being trusted. He had himself never cut up and tested a cylinder before this accident. His predecessor, however, had on one occasion cut up a cylinder and made tests of which witness had the result. There was a mark on the valve of the cylinder which burst and killed the deceased indicating that it had been tested to a ton and a half per square inch. He declined to commit himself to any opinion as to whether this test was sufficient for a working pressure of 1,800 lb.

A conversation took place between the Coroner and Mr. Macmaster with regard to the interest which the railway companies had in the matter, and Mr. Macmaster mentioned that a conference of high railway officials was taking place in London that afternoon to consider whether any further precautions should be taken in connection with the carriage of these cylinders, and whether any further regulations were necessary. He should expect, after what had been learned that day, that the present regulations were amply sufficient. The matter would receive most careful attention.

Mr. Jackson said that he had just received a telegram saying that the conference had deferred further consideration of the matter in order to ascertain what information was elicited at that inquest.

Mr. Goodman, resuming, mentioned that an oxygen cylinder was some time ago dropped accidentally upon some concrete stairs at the Yorkshire College. The stairs were broken, but the cylinder was only dented, and there was no explosion. He had known one or two instances where such cylinders had been dropped without exploding, and he produced a photograph of a cylinder which was damaged when delivered, and which had a very deep dent, evidently from a blow, but the cylinder had not blown up.

Mr. Jackson mentioned that the result of experiments on such cylinders was reported in the Year Book of Photography, 1893.

Joseph Riley, of the firm of Messrs. Riley Brothers, magic-lantern outfitters, Cheapside, Bradford, said that the cylinder which burst with fatal result was purchased by his firm from the makers—the Projectile Company, Limited, of London—and delivered direct to the Manchester Oxygen Company to be filled. It came to his premises in January with five others, one of which was cut up by Mr. Goodman, and the other four of which were now at his premises. The cylinder which burst was the only one which had been used, the valves of the others being of an inconvenient shape. When the one which had broken was filled, a fee was paid for it being tested. Including this fee, the cylinder had cost 4d. more than cylinders could be purchased for direct from the Manchester Oxygen Company, and this increased cost had led his firm to buy no more from the Projectile Company. The cylinder which had burst had been out four times.

After the coroner had summed up, the jury found a verdict that the deceased met his death from the accidental bursting of a cylinder made of unsuitable metal, and they strongly recommended that in future these cylinders when sent out should be protected, either by cases or otherwise.

REMARKS ON HAND-CAMERA WORK AND HAND CAMERAS.

BY. J. K. TULLOCH, M.B.

I CONFESS to having been for a long time a very great sceptic as to the possibility of doing even decent photography with a camera held in the hand. The excellent slides shown at some of our meetings from negatives said to have been done in hand cameras almost persuaded me that the thing could be done, however, and I immediately set about a mild kind of inquiry into two or three points which specially interested me.

Whether it be from use and wont, habit, prejudice, or what you like, I am a "stickler" for definition. I go in chiefly for lantern-slide work, and, however tolerable a 14 by 12 fuzzytype (as they have been jocularly called) may be, want of definition in a little picture three and a quarter inches square has always been singularly abhorrent to me.

For this reason it was a long time till I could bring myself to believe that a hand-camera negative need not necessarily be blunt. I have proved to my satisfaction now that a *high* degree of sharpness is attainable in a hand-camera negative. A good deal of the work done by the hand camera is not sharp, but it need not have this defect, and this was the first question I determined to test, "To what extent must one be prepared to sacrifice definition in taking to a hand camera?"

Andrew Pringle, in his classification of amateurs, has a class of *mechanical* amateurs. It seems that their hobby finds expression in the designing and making of hand cameras. I plead guilty to being of this class, and furthermore plead guilty to having made no fewer than four hand cameras this season. When I say I have made four hand cameras, I mean this in a certain restricted sense. For certain reasons which may appear later on, I soon decided in favour of dark slides as against a magazine arrangement, and it is to be understood that in my home-made hand cameras I did not make the dark slides. But, to begin at the beginning, when I first decided to take up hand camera work, I sought to make a camera having the following conditions or qualifications. First, it must be small, light, and portable, strong, weather-proof, capable of carrying eight to twelve plates, easily changed. The shutter must be not over-fast, and not liable to get out of order. Lastly, but most important of all, it must be well within my power of construction.

I first of all sent to Mr. Wray, of London, for a simple stereoscopic lens of five inches focus. I decided upon a single lens for the following reasons. First, as I only wanted the lens to cover a lantern plate, a single lens of five inches focus is practically rectilinear, even under trying conditions, upon this size of plate. Secondly, a single lens gives a crisper and more brilliant image. Thirdly, this stereoscopic lens by Wray, working as it does magnificently at an aperture ratio of eleven, was abundantly fast for all ordinary purposes; and, lastly, a single lens even by a good maker is comparatively cheap, this lens by Wray, for instance, costing but twenty-five shillings.

To have gone in for a rectilinear I would have had the advantage only of working with a larger aperture, and this with the disadvantage of giving me less depth of focus, or requiring me to arrange some focussing arrangement on my camera before I could have taken advantage of the large aperture for near and far objects. By contenting myself with an aperture of *f*-11, I secured such depth of focus as to render any focussing arrangement on the camera unnecessary—a huge point, I think. A single lens has other points of advantage which I need not advert to, such as the ease with which a shutter can be fitted on it, and so on.

The lens having been duly received, I set about the construction of camera No. 1 as follows:—A well-made pine plate-box with grooves for twenty-four plates was procured. This box was divided into two chambers or divisions by a thin partition of wood. The front half was the camera proper, the back half the magazine. The lens was placed on the end of the box, having upon it a shutter, which I need not describe, as it did not turn out satisfactorily. The hinges and hasp were blackened with chloride of copper, and the whole box covered with morocco leather. It had quite a respectable appearance. Although there had been no attempt made to disguise the true nature of the machine, if one carried it under the arm (and it was small enough for this), with the lens looking to behind you, not in front, people passed by, like the Levite of old, and took no notice.

The plates were changed in a simple and certain way. I had a small bag made of two thicknesses of black twill. The mouth of the bag was opened, the camera dropped in, and the bag tightened by means of a running string round the wrist. This done the catch of the lid was turned, the lid opened, and the plate taken from the back half of the camera (where were a dozen plates in the grooves) and slipped down in front of the partition, where it was ready for exposure. I used this camera some half-dozen times, but soon found that it had two faults.

In the first place, while the plates were most easily and rapidly changed, the manœuvre was conspicuous and objectionable in streets and crowded places, where one would most naturally use a hand camera.

In the second place, the movement of the hand and arm to release the shutter caused the camera to move, and my pictures were blurred. At first I thought I had not set my lens to focus. I tested this by setting my camera on a stand, and exposing with a cap. The picture was sharp. I then thought the shutter vibrated the camera. I tested this by holding the camera myself and getting a friend to release the shutter. The picture was sharp. I therefore concluded that it was the movement of the hand and arm in the act of releasing the shutter that did the mischief. I may remark here that I am convinced that many of the blurred pictures got from hand cameras are brought about, not by vibration of the shutter, not by unsteadiness in holding in a general way, but from this special movement made unconsciously in the act of releasing the shutter. Later on I will describe some trials I made to determine how prolonged the exposure might be without blurring, this movement being eliminated.

Seeing that the mode of the changing of the plates was unsuitable, and the shutter difficult to release without movement, I determined to make another camera. I cannot show you this first camera, for the simple reason that I have used certain parts of it as material in the subsequent cameras. In thinking over the question of an easy release for a shutter, I remembered that I had a simple drop shutter, which was all that could be desired in this respect. I hunted it out. A simple unaccelerated drop shutter gives about the speed I like. It is not prone to stick or get out of order, but it is cumbrous; over and above this, its adds considerably to its size to have it on the camera in a set state. Still the drop shutter had so much to recommend it that I determined to adopt it and bring all other conditions to suit it. As I had no means of keeping the light from entering the camera while setting the shutter, I abandoned the idea of any magazine arrangement, and decided to have dark slides. Having little experience of magazine cameras, I can give no opinion upon them. All that I can say is, that the dark slides have given me unbounded satisfaction. You can carry one in this pocket, one in that, so that you never feel them about you. You can fill Nos. 1 and 2 with quick plates, Nos. 3 and 4 with slow, and expose them how you like. You can slip down to the harbour with only a single plate or with eight, just as you like, and the changing is simple and rapid. I am a great believer in the dark-slide system. As dark slides are not child's play to make, I ordered four from Mr. Birnie, and meantime set about devising camera No. 2.

I thought myself almost to distraction as to how I could contrive to design a box with a drop shutter on the end of it to look tidy and inconspicuous. While busy over this question, I remembered that camera No. 1 had not proved weather-proof; indeed, I was convinced that it was not possible to make a hand camera weather-proof, and, if this were to be remedied by having a water-tight case of any kind for the camera to be carried in, seeing that the camera would be only exposed for a moment during the exposure of the plate, I might as well have the camera any handy shape I liked, independent of appearance altogether. This simplified matters hugely. I designed a simple box, of proper dimensions at the back to take the slides, but getting narrower towards the front, to allow my hand to lie naturally to the release of the shutter. The body of the camera I made of stout millboard, attached with brass screws to a mahogany front for the lens, and a mahogany frame behind for the dark slides to work in. The whole was covered with stout morocco leather, and, as you will see, is quite presentable. I thought I would require no finder, but placed a circular spirit level on the top. This camera I thought, at first, a great success. I got my saddler to make me a nice leather case to hold it and the dark slides, and thought I had come to my journey's end.

The first fault I had to find with it was this: I had placed the lens centrally to the plate, and this gave me my horizontal line too high, I had too much foreground by far. I see from time to time writers in the journals crying out for a rising front for the hand camera; I have no desire for any such addition. Let the lens be so fixed as to give, with a level view, a horizontal line about one-third up the plate, and the cases must be few indeed requiring further elevation. That was the first fault; that I remedied by altering the position of the lens. Now, some one may be inclined to say, "If you had had a view-finder you could have had the horizontal line just where you liked by tilting your camera." True, but in that case my architecture would have been, so to speak, "to the dogs" without a swing back, and who has time to stand in a crowded street arranging a swing back? No, I found, after the alteration of the lens, the camera was all that could be desired, as far as performance was concerned.

What, then, was fault No. 2? It was this. I said that I had got my saddler to make me a case. Now, a saddler makes a solid and substantial job, not, however, erring on the light side. Again, a case to hold a quarter-plate camera, which does not fold down, together with four double dark slides, must needs be of considerable bulk, and this was fault No. 2—the camera and slides made a too heavy and bulky parcel. If you slung the thing over your shoulder, it was big enough to be conspicuous; if you carried it in your hand, where were you to dispose of the case while you made an exposure? It was weather-proof, and fulfilled every other condition, but it was too bulky. *(To be continued.)*

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The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, DECEMBER 1, 1893.

All Advertisements and communications relating to money matters, or to the sale of the Photographic News, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the Photographic News at the same address.
The Photographic News is issued every Friday, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

The Photographic News.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

Alexander & Shepheard, 21, Furnival Street London, E.C.

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RAMBLING PAPERS.

BY H. P. ROBINSON.

No. XII.—The Originators of Photography.

IT has been my fate during many years to have to point out that too much devotion to science is inimical to the study of art. It is not necessary for me to recapitulate my reasons here, but only shortly to state the fact. This has not been taken in good part by the scientists, or rather those who would pose as scientists, and one of their stock replies is, that there would have been no photography if it had not been for science. This is no answer to my argument, which has been to the effect that, taking photography as it has existed for, let us say, the last ten or twelve years, we have the art substantially perfect for the purpose of making pictures. I do not take into account the industries that have arisen out of photography; and that our attention would be better turned towards putting the knowledge we have to its proper use than seeking to improve the processes; or, if there must be improvements, they are better left to those whose business it is to supply us with processes. In short, let those who pose as photographers do all in their power to improve its application, and let the inventors supply the materials.

Let us see what we can make of the question—Did scientists invent photography? Of course it may be argued that science is the bottom of all things, but that does not make all men scientists. It should also be stated that by the title "originators" I don't mean those who have vaguely suggested this, that, and the other, on the strength of which inventions are claimed, when they are worked out in after years; but those who have done the hard work, and practically invented the processes we use.

As an illustration of what I mean I may mention the name of Schultze, who, early in the last century, noticed the darkening of certain silver salts by the action of light. For this he has been called a "Father of Photography." To the ordinary mind the stupidity of seeing so little, and, having seen, going no further, overpowers the credit of the early observation. Another illustrious chemist, Scheele, fifty years later, observed the same dead facts, and is another "Father of Photography."

Who, then, are those to whom are usually ascribed the important discoveries in photography? Leaving out of the question those who have noticed isolated phenomena, such as the two chemists I have just alluded to, Wedgwood, Wollaston, Davy, Ponton, and that ancient Egyptian who forstalled Baptista Porta by inventing the camera and lens a few thousand years ago, we come to Joseph Nicéphore de Niepce, Daguerre, Fox Talbot, Rev. J. B. Reade, Sir John Herschel, William Scott Archer, Dr. Diamond, J. W. Swan, W. Willis, and Charles Bennett.

The first important discoverer was undoubtedly Niepce. He was the first who produced an image by the action of light, samples of whose work have come down to us. His first permanent pictures were produced in 1824. He was not a scientist. He is described as a philosopher, "designed for the Church." In connection with Niepce, it may be mentioned that the first snub photography met with from science was as early as the year 1827. In this year Niepce, having attained a high degree of success with his process, visited England for the purpose of bringing his discovery under the attention of the Royal Society. His paper and specimens were submitted to the Society, and declined on the plea that the Society could not receive or pass any opinion on a process the details of which were not disclosed. Perhaps a wholesome general rule, but certainly unfortunate in this case, and another example of the mischief done by hard and fast laws. Photography was probably retarded many years by this act of the Scientific Society. The paper Niepce intended to read, and specimen plates and prints, came into my possession some years ago, and are now in the Loan Collection of the South Kensington Museum. Curiously enough, one of the latest developments of photography was one of the first to be discovered, and the most interesting specimen in the collection is a pewter plate, reproduced from an engraving, and still capable of giving good impressions in a copper-plate press.

The next inventor in the accepted order is Daguerre. Was he a scientist? Certainly not. He was an artist, and painted very big pictures indeed. He was not only a painter, but a colossal painter. I wish I could think that the invention which bears his name was entirely due to Daguerre. Yet, after all, I may claim him, for it is certain that he exploited the process, and took the lion's share of the profits. Therefore, for daguerreotype, universally acknowledged as one of the greatest discoveries in photography, we are indebted to a painter.

Fox Talbot, whose process was published in the same year as Daguerre's, was certainly a scientific investigator. His first process was called photogenic drawing, a process not unlike the silver printing process on matt paper in the present day, except that the prints were fixed in a solution of common salt, or iodide, or bromide of potassium, and were not toned. The credit of the discovery of development, the most important in photography, is often given to Talbot, but was due to the Rev. J. B. Reade, the result of a lucky accident. Fixing by the use of hyposulphite of soda was the discovery of Sir John Herschel. After the earlier ones, Fox Talbot patented all his discoveries and endeavoured to establish claims over those of others, and it is recorded that he was so tenacious of his rights that the formation of the Photographic Society was for a time prevented.

The greatest and most useful invention of all came next, in 1851. If the collodion process had not been discovered and worked out, photography would never have become the third wonder of the nineteenth century. Its discoverer, William Scott Archer, was a sculptor—another artist. Of course there was a twin discoverer—there always is in photography—and the process is sometimes given to Le Gray, because he suggested that the newly-discovered viscous fluid, collodion, would be a suitable vehicle for the sensitive salts, but his claims are not considered seriously now. A mere suggestion, if not followed up, is of no practical value. Archer was fortunately associated in his experiments with a gentleman ripe in all the photographic knowledge of the time. It was to the skill and knowledge of art of Dr. Diamond that the first results, and the introduction of the process, was largely due The process was so perfect, as far as it went, that little improvement followed, except in the use of iron developer, and the addition of bromide to the collodion, and photographers had nothing to distract their attention from turning the process to account. Dr. Diamond was not a scientist. A great improvement in the process was the addition of bromide to the sensitising salts in the collodion. This was obstinately opposed by Hardwich, the chief scientist connected with photography at the time, and his authority checked the progress of the art for several years.

The advance of photography along the line of minor discovery has been almost entirely due to practical men. The best collodion dry process was that of Mr. Russell Manners Gordon, not a scientist; and whether alkaline development, without which rapid exposure would have been improbable, belongs to Major Russell or to Mr. Leahy, they were neither of them scientists.

It is not always easy to say to whom an invention is due. There are several claimants to the honour of having suggested and even produced a gelatine emulsion. These suggestions were dotted about the journals for many years without coming to anything, until the man who stewed his emulsion gave us modern photography. This epoch-making stew is universally ascribed to Mr. Charles Bennett, a member of the well-known firm of hatters. He was not a professional scientist. It may be easily shown that this immortal bit of cooking was more important and more far-reaching in its results than many great discoveries of the century. He did not patent his discovery, as nearly all the other discoverers did, or tried to do, but revealed it to all the world without reward. Moreover, he gave a complete working process, not a mere suggestion only. Yet who ever now hears of Bennett? Does the majority of my readers know whether he is alive or dead? The next statue put up should be to Charles Bennett.

I think I may claim to have shown that, in its great initial points, photography is very little indebted to scientists, and, indeed, it would seem that the art owes its essentials, on the process side, to a philosopher, a painter, an amateur scientist, a sculptor, a doctor, a clergyman, an astronomer, and a hatter.

I have said nothing of those who have applied photography—the real photographers, in fact—this article being devoted to the discoverers and improvers of the processes. But it may be worth while to point out that the first President of the Photographic Society of London was also President of the Royal Academy, and that in the early years it was not considered as a science. Fox Talbot, himself, speaks of it as "this newly-discovered branch of the fine arts."

* * *

We have received from Messrs. Thorns, of Clapham, a sample of their Chloride of Gold. As far as we can judge from a cursory trial, it fully answers its purpose.

PETITION FROM PHOTOGRAPHERS.

We have more than once referred to the outside competition to which the photographers of New Zealand are subjected through the operation of an unfair tariff. The following petition is the outcome of recent agitation on the subject.

The following petition, signed by seventy-five New Zealand photographers, was presented by Sir Robert Stout on August 16th :—

"To the Honourable the Members of the House of Representatives of New Zealand in Parliament assembled.

"The Humble Petition of the undersigned Photographers, resident and practising in New Zealand, sheweth—

"1. That your petitioners approach your Honourable House with a sincere desire to maintain and advance the character and excellence of the photographic art in New Zealand.

"2. That your petitioners are discouraged and in many instances ruinously affected by the unrestricted sale of foreign photographs of New Zealand subjects, introduced under a tariff which presses heavily upon Colonial industry, and at the same time protects the importer and enables him to sell at prices ruinously competitive with the work of your petitioners.

"3. That your petitioners would respectfully submit to your Honourable House that the spirit and intention of the present tariff is evidently in favour of fostering the development of photographic art in New Zealand and of protecting the important Colonial industries dependent thereon, for, on the passing of the Tariff Act, photographic papers, plates, apparatus, and the most important chemicals were admitted free. But subsequently it was decided by the Customs authorities (to the serious injury of the trade of your petitioners) that bromide and other sensitised papers, introduced into the trade since the passing of the tariff, and which combine the properties of both plates and paper, should be liable to a duty of twenty per cent. That the duty of fifteen per cent. at present levied upon important photographs, which are produced with the advantages of cheap labour and materials, is not sufficient to compensate your petitioners for the increased cost of Colonial production.

"Your petitioners would therefore pray your Honourable House to favourably adjust the incidence of taxation by abolishing the duty upon such important materials as mounts, bromide paper, and other sensitised papers, which cannot be manufactured in the Colony ; and by increasing the duty now levied upon all imported photographic pictures of New Zealand scenery and photographic enlargements of New Zealand subjects to a protective duty of thirty per cent.

"And your petitioners will ever pray, &c."

The following is a copy of a circular letter which was addressed to the various Members of the House of Representatives :—

"Wanganui, August 15th, 1893.

"To..........................M.H.R.

"Dear Sir,—The photographers of New Zealand have for some considerable time been suffering from the undue competition of persons and companies residing and working outside the Colony. These people flood the New Zealand market with their various photographic productions —copies and enlargements of photographs, views, &c.— which, owing to cheap labour obtainable in crowded centres of population, low-priced raw material, and small rents, they are able to introduce and sell in this country at prices ruinous to the resident photographer whose home is in the Colony and who pays his share of taxation.

"The grievances complained of are intensified by the existing New Zealand Customs tariff—the resident photographer has to pay from twenty to thirty per cent. on much of the raw material used exclusively in photography, and yet strangers are able to send in finishised photographs at fifteen per cent.—we are thus actually protecting the outsider against ourselves.

"With the view of gaining some relief from this condition of things the photographers of the Colony are about to present a petition to the House, of which the subjoined is a copy, and it is with the object of soliciting your kind consideration and enlisting your valuable aid and influence in procuring a favourable reply to their prayer that the New Zealand photographers venture thus to address you, and on their behalf I beg to subscribe myself, your most obedient servant,

"A. Martin, Photographer, Wanganui."

CHRONO-PHOTOGRAPHIC STUDY OF THE LOCOMOTION OF ANIMALS.

For the following translation of a communication by M. Marey, to the Paris Academy of Sciences, we are indebted to our contemporary *Nature:*—

The chief interest in the study of organised beings is to look for the similarity which exists between the special conformation of each species, and the particular characters of the functions in this species.

The union of comparative anatomy and physiology is becoming more and more close, and will, without doubt, lead to the discovery of the fundamental laws of morphology—laws by means of which the inspection of an organ will permit us to foresee the particularity of its function.

These relations begin to be comprehensible in the case of the organs of locomotion of vertebrates. The size and length of the muscles, the relative dimensions and form of the bony supports of the members, the extent and the form of the articulating surfaces, enable us to infer the character of the movements of mammals ; and, on the other hand, the accuracy of these deductions can be proved by controlling them by chrono-photography, which gives the geometrical character of these movements.

Attempts have been made to extend this method of analysing the movements of a number of different animal species by chrono-photography, and they have been successful not only with mammals, but also with birds, reptiles, fishes, molluscs, and arthropods.

It will no doubt be a lengthy enterprise to collect the numerous series of pictures necessary for this comparison, but we have been able to assure ourselves that it is nearly always possible to obtain such pictures by varying the conditions according to the kind of animal studied.

Reptiles, for example, must be put in a kind of circular canal, where they can run at their ease; the chrono-photographic apparatus is placed above the path in which the animal runs, and thus photographs the successive attitudes during the course.

The fish swim in similar troughs filled with clear water, and illuminated underneath, in order that their silhouettes should appear on a clear background. At other times the animal is lighted from above, and thus appears light on a dark background. Similiar arrangements are employed for insects. It is not necessary to have here the dark background which served for the study of mammals and birds. The principal difficulty is to ascertain whether the animal under experiment is moving in its normal fashion. With the domestic and tame kinds this is not considerable, but with wild species it requires much patience and many attempts to secure the natural movement.

On comparing some of the types of which chrono-photographic images have been obtained, very interesting analogies are found. Thus, for locomotion on land, as well as in water, it is possible to follow the gradual transitions between simple reptation and the more complicated kinds of locomotion. An eel and an adder put in water progress in the same way; a wave of lateral inflexion runs continually from the head to the tail of the animal, and the velocity of the retrograde progression of this wave is slightly greater than the rate of movement of the animal itself.

If an eel and an adder are placed on the ground, the manner of reptation is modified in the same way with both species. The undulatory movement has here and there a greater amplitude, and this amplitude increases with the smoothness of the surface on which the animal moves.

With fish, provided they have fins, and with reptiles which have feet, there remains, in general, a more or less pronounced indication of the undulating movements of reptation.

With the dog-fish, for instance, the retrograde wave which goes the length of the body is very pronounced; it is much less with salmon, and exists hardly at all, except at the end of the tail, with fish with thicker bodies.

The retrograde wave during the terrestrial movements of the Gecko is plainly visible, but is less pronounced with the grey lizard and green lizard.

The batrachians present, during the successive phases of their evolution, varied types of locomotion, familiar to every one, of which the chrono-photographic analysis is very interesting. The tadpole of the toad, for example, exhibits progression in the first stage by the undulation of the fin, when the feet appear there is a mixed type of locomotion; the tail undulates, and on both sides the posterior members execute the movements of swimming which is usual to them. These movements of the posterior limbs alone remain some time after the tail has disappeared. Of these movements, which resemble so much those of human swimming, one is especially noticeable; in this the interior limbs do not take any part, and the posterior, after having formed a right angle with the axis of the body, approach each other till they become parallel, then bend and stretch themselves again to begin anew. The movements of the lizard's limbs escape direct observation on account of their rapidity, but on the chrono-photographic images, taken at the rate of forty to fifty a second, one can easily follow the successive movements of the limbs in front and behind. With the grey lizard, as well as the Gecko, the normal pace is that of a trot—that is to say, the limbs move diagonally. The great amplitude of the movements of the limbs, combined with the undulation of the axis of the body, causes the limbs to approach one another very much on one side, and the next instant to separate. The Gecko carries its hind foot nearly under the armpit on the side where the body becomes concave; the instant afterwards, this side becomes convex, the anterior limb advances very much, and the two limbs (the body presenting on this side a convex arc) will be wide apart.

Many other very interesting observations can be made relating to the movements of insects and arachnids.

THE DISTINCTNESS OF PHOTOGRAPHS TAKEN WITHOUT AN OBJECTIVE.

BY R. COLLSON.

BY a method elsewhere explained I have found that the image produced by a small circular aperture on the sensitive surface of the photographic plate shows a maximum of distinctness for a given distance, of the object, if the distance of the photographic film to the aperture has a convenient relation to the diameter of this aperture. In other words, to a position of the object corresponds, for every value of the diameter of aperture, a certain length of extension of the camera, and *vice versa*. In the following I propose to point out how interesting and important it is to observe this law in the practice of photography without an objective.

It has been and is still believed by many that this method of photographing is incompatible with a sufficient distinctness of the image on account of the appreciable diameter of the aperture, varying, according to the law mentioned, between two and nine-tenths of a millimeter in most of the cases met with.

And, first, what is distinctness of image? I define it as the greater or less facility of distinguishing this image from the medium surrounding it. To give more certainty to this idea, if we take as object a small, plain, and uniformly illuminated surface standing out against a perfectly uniform background, the small patch forming its image on the film will be so much more clearly defined, as the change in passing from its centre of intensity to the background is sudden and rapid. In the same proportion as this rapidity of change is diminished, the image becomes more and more distinct, while the haziness increases. It must, therefore, be determined at what value of this variation we obtain what we call a sufficient distinctness of the image.

Now, it is evident that this depends largely on the very nature of the intended use of the image. So, for instance, if we wish to examine closely the details of a microscopical preparation, we shall try to obtain a very high degree of distinctness. For a landscape, on the other hand, it will be preferable to substitute a less degree of distinctness, being more artistic and more resembling the effect produced in the eye by the direct vision; for this landscape, as well as for a building, statue, &c., and, in general, wherever the image is not intended for microscopical examination, two points of the image can be considered as forming only one, if their distance apart is only one-tenth of a millimeter or less, since the eye could not discern them without the aid of a microscope. This is a well-determined limit, which is generally admitted for the definition of a point in a drawing. Using this definition, we may say that a photographic method gives a sufficient distinctness of the image for the purposes in question, if the interval between two objects, which is theoretically one-tenth of a millimeter on the scale of the image, is sufficiently discernible on the plate to allow a distinct separation of the two images. This is what may be called "distinctness to one-tenth of a millimeter."

On examination of a large number of plates, it appears that this degree of distinctness may be obtained by photographing without an objective, if the diameter of the aperture is determined by the rule of maximum distinctness, according to the distance of the object and the extension of the camera. If the object is placed very near the aperture (for instance, nearer than one meter for an aperture of four-tenths of a millimeter), as it is done in reproducing drawings, we have the least favourable conditions as regards distinctness; if, in reducing to one-half, we substitute for a drawing with separated lines, as an etching, a painting with dark and continuous colours, the distinctness is more than two-tenths of a millimeter, yet it is still sufficient to convince us of the continuity of the outlines.

This application is very interesting, and permits the transforming of etchings into half-tone images, presenting a very artistic appearance.

This may be seen from the specimen of this kind of work annexed to the accompanying paper; in this reduction on the scale of one-half the single lines have entirely disappeared

In proportion, therefore, with the increase of the distance of the object (the aperture varying according to the law), the distinctness also increases and approaches one-tenth of a millimeter.

The second plate annexed to the accompanying paper, representing the "Esplanade des Invalides," is an example. These are results of experiments which every one may verify by placing himself in the conditions mentioned above.

Theoretically, it is difficult to understand the possibility of obtaining such a distinctness; for a solution we have to look to the modern theory of light, abandoning the ideas in vogue at the time of Porta, the inventor of the camera.

According to these old ideas, the image produced in the camera by a luminous point outside of it is limited by the rays proceeding from that point which are tangential to the circumference of the aperture; in other words, the image is inside of the cone of rays terminating in the luminous point, and whose basis is formed by the circumference of the aperture. This cone separates the light from the shadow.

According to this conception, as will be seen, the image of a luminous point is always at least equal to the aperture; it equals it, if the luminous point is very far, and, according to its approach, the angle of the cone increases, together with the area of the image. If this was really the case, then, since the aperture has a diameter of several tenths of a millimeter, every point of the object would be represented by a small surface of the diameter of a still larger number of tenths of a millimeter, and the whole of these surfaces, covering each other, would produce an entirely confused and useless image.

But though this conception, because of its simplicity, first occurs to our minds, yet it must be recognised that it is not verified by experience, and that it cannot be maintained in view of the more modern wave theory. This, however, is not the proper place to explain this theory, which may be left to the students of physics. Yet we may at least mention a very peculiar experiment of Fresnel, which may be easily repeated, and which is closely related to our subject.

We place a sheet of white paper vertically, so that it forms a plane, and at the distance of about two meters a vertical and very narrow slit, illuminated by a source of light placed behind it and as near to the slit as possible: this source radiates a simple light—red light in Fresnel's experiment. Half way between the paper and the slit we place vertically the straight edge of an opaque screen.

According to the theory of the geometrical shadow, an abrupt separation of light and shadow should appear on the paper at its intersection with the plane determined by the luminous slit and the edge of the screen.

We observe, however, vertical bands, alternately bright and dark, whose intensities differ less and less as we advance toward the illuminated part, with which they unite at a short distance from the shadow. The most brilliant band is the first one, counting from the region in the shadow; with the red light used by Fresnel, it is about one millimeter distant from the place which should be the edge of the geometrical shadow.

We add now a second opaque screen, with its edge parallel to that of the first one, varying the width of the opening between them at pleasure.

If, now, we leave first a relatively large opening of some centimeters, every one of the two edges gives its own bands, which unite with the illuminated centre of the bright region. Diminishing the distance between the two edges, we see the bands begin to cover one another, until we arrive at a moment when only the two outmost bright bands remain, separated only by a dark band. If we continue to diminish the distance of the edges, the two bright bands coincide, forming a single band at the centre of the illuminated region; the intensity diminishes from each side progressively, with ill-defined fringes. Consequently, the light grows feebler, and disappears in proportion to the decrease of distance between the two edges.

All these phenomena may also be produced with blue light, which acts most powerfully upon the bromo-gelatine film; only the fringes would look ragged. If daylight is employed, it would have the same effect in regard to photographing these fringes as if blue rays were exclusively used, since the bromo-gelatine film is most affected by these radiations. It is well to be understood that we are concerned here with ordinary plates not impregnated with substances rendering them sensitive to other radiations.

If we now compare the different aspects of the paper which receives the light, we find:

1. That too large an opening gives a large and ill-defined image.

2. That too narrow an opening causes the image to vanish, diminishes its intensity, and makes the change from light to shadow less rapid.

3. The best result must be obtained between the two extremes, and, indeed, the opening which leaves only one brilliant fringe is much more satisfactory to the conditions sought for.

Besides, we might add that this fringe is much narrower than the luminous part which would be obtained by the geometrical shadow. Substituting now a luminous point for the luminous slit, and for the two screens with straight edges a screen perforated with a circular hole, we observe similar phenomena, in which the fringes are circular. It will now be understood that the small circle forming the image of a point may be reduced to very small diameter, giving a maximum distinctness of the image for an aperture of convenient diameter.

The foregoing is said on the supposition that the luminous point, the aperture and the sensitive surface, are separated by the distances indicated in Fresnel's experiment; but the aspect of the fringes varies with the distances; this explains why the distinctness of the image must also vary and show a maximum for a value of the diameter of aperture, which depends upon the distance of the object and the extension of the camera. Thus, we are able to account for the principles involved in photographing without an objective and for the existence of a law of maximum distinctness, confirming the harmony of experiments with the wave theory.

The observation of this law permits us to obtain a degree of distinctness, sufficient for many purposes, and which enables us to use the remarkable qualities of this method; extreme simplicity, very large field, great depth of focus, and entire absence of deformation.—*Read at the World's Congress of Photographers, Chicago.*

* * *

We are requested to note that the first one-man exhibition at the Central Photographic Club, Coleman's Hotel, Henrietta Street, Covent Garden, is now open. The pictures shown are those of Mr. Thomas Fall, of Baker Street, and the collection includes a large number of the fine studies of dogs with which Mr. Fall's name is identified. A visiting card admits non-members of the Club.

PHOTOGRAPHIC OBSERVATION OF MINOR PLANETS.*

BY MAX WOLF.

THE difficulty in finding a faint minor planet in order to get an observation of it is a great one, because the position of the planet is usually but roughly known. Even with a good ephemeris it is often a very fatiguing work in consequence of the want of charts for the fainter stars. The observer must make a diagram of the region in which he supposes the planet to be. After a time, on comparing the diagram star by star with the sky, he finds that one star—the planet sought for—has moved. But if the ephemeris was very far from the true one, the whole work would be lost, because one would have taken up a false part of the sky.

A much greater work is to be done if one wishes to detect a *new* minor planet. There are a hundred and more fields of view to be charted and compared before a new one is found. The perseverance of the planet-hunter can not enough be admired.

Photography holds out—as will immediately be seen—two great advantages over this ancient method; first, it gives us a larger field, and thus increases the probability of catching a planet about fifty times; then it permits us to distinguish the planet from the enormous number of faint stars, the planet moving amongst the stars and marking a short trail on the photograph.

I commenced photographing asteroids in 1890, using two instruments, a telescope lens of 16·2 cm. aperture and 262 cm. focal length, and an aplanatic lens of 6 cm. aperture and 44 cm. focal length. But I had no success, because I did not employ suitable lenses, the focal length of the first employed being too long, and the aperture of the second too small.

(*a*) To photograph *faint* minor planets, a marked brightness of image is required.

For photographing nebulæ the brightness of image has a factor approximately the quantity $\frac{D^2}{F^2}$, because the brightness of the image is diminished if the area is enlarged.†

A minor planet gives as area a "point." Comparing different lenses the brightness of the image would be in proportion to the square of the diameter: D^2, or more accurately in proportion to $\frac{D}{\sqrt{F}}$. But because the train of thought is the same for the two formulæ, we take for simplicity's sake the first.

The planet is moving during the time of exposure. Pointing the plate upon the fixed stars, we get a trail on the plate from the planet; and this trail becomes longer when using a lens of longer focus. The intensity of the planetary image therefore is diminished by a longer focus, and we have approximately for the intensity : D^2/F (or perhaps more correctly, $D/F^{\frac{3}{2}}$).

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* Read at the Congress of Astronomy and Astro-Physics, Chicago, August, 1893.

† Where D is the diameter and F the focal length of the instrument.

To photograph minor planets, then, we need a lens with an aperture as great as possible, with a focal length as short as possible, and last, but not least, one giving a large field.

Mr. Roberts, who has first photographed the minor planet Sappho, used his mirror of 51 cm. aperture and 254 cm. focal length. The intensity of his instrument was therefore 10·2. My first instruments gave an intensity only of 1·0 and 0·8, and therefore I had no success for fainter planets.

From this point of view, after having comprehended the matter, I recommenced the photography of minor planets in November, 1891, using an aplanatic lens, which had T 2·2, which is still four and a half times feebler than Mr. Roberts'. But it was strong enough and had a field twenty-five times larger than that of Mr. Roberts.

By this lens I got the first *new* minor planets discovered by means of photography. Subsequently I used a six inch portrait lens, the intensity of which was 3·5, and the field about 100 square degrees.

A large portrait lens is the most efficient, because D^2/F is there at a maximum, and the field is also as large as possible. Reflectors, therefore, are not useful in photographing minor planets, since their field is too small.

(*b*) To have success in photographing minor planets there are some other points on which care must be taken.

Very sensitive plates must be used. The development is to be made without haze ; they must remain as clear as water ; if not, the faint planetary trails are lost. For this reason moonshine is a very great impediment.

Photographic operations have to be finished as quickly as possible, in order that the examination of plates take place before the planet has moved too far.

There are a large number of objects on the plate which are similar to a planetary trail as close double stars, lines of nebulæ, and especially those faint stars, which are so remarkably pressed into laces. From *one plate alone* therefore, the certain detection of a planet is seldom possible.

In order to ensure complete success, we take a second plate immediately after the first. Then every planetary trail is recognised by the rule that the trail on the second plate must be the continuation of the trail on the first plate, and that the spot where the planet was trailing on the first plate must be clear on the second, and *vice versa*.

Another way is the following. We use two similar pieces of apparatus, mounted together. With the one we expose a plate for the first and second hour ; with the other for the second and third hours. In this way we need only three hours, instead of more than four by the first method.

(*c*) To take accurate positions from the plate there are several ways : for example, by rectangular co-ordinates or by the parallactic apparatus, &c. I used my own method, because I was compelled to use the cheapest apparatus. I measure in the field of view of a microscope by a filar-micrometer the distances of the middle of the planetary trail from three or more comparison stars. From these distances I obtain by the formulæ of trigonometry the differences of α and δ.

Since a number of comparison stars can be taken, the position is less influenced by erroneous positions of comparison stars than in ordinary optical work ; and likewise errors of measuring and reckoning are checked by taking several stars, which is easily to be done in day-time.

(*d*) The question may now arise why we use the photographic method for position work, and not for planet-seeking only.

Indeed, so far as regards my small portrait lenses—also Mr. Charlois'—the operation of measuring a planet, *of which the place is given*, is for the most part much more conveniently done by optical work with a large telescope, because the long fatiguing exposure is not required. But increase the photographic lenses by a few inches, and they will photograph planets invisible even through a large telescope. It has already often happened that one of the smallest planets obtained by photography was below the optical power of a twelve-inch Clark refractor.

If we can use larger portrait lenses, then we *must always* measure the positions by means of photography.

(*e*) There are some problems to be examined, which are connected with the measurement of the planetary trails, one of which I shall indicate.

In measuring the position of a planet on a plate, the short trail must be bisected. Now it would appear that the time of the middle of the exposure is that of the middle of the trail. But this is not necessarily true. The chemical process and the variation of the clearness of the sky can displace the middle of the trail.

It is possible that from chemical reasons the trail is prolonged a little at the end of the exposure. The simplest way to find it was simultaneous eye-observations and photographs. But I had not the optical means to do so. I commenced to compare the trails and points of a star cluster taken on the same plate. This very small prolongation, if it is there, must be easily found as a function of the velocity of movement and of the brightness of the star.

The second error is more troublesome. Even if we suppose that the status of the atmosphere would remain the same during the exposure, the influence of the absorption will displace the middle of the trail. For, if we expose upon a planet rising to its culmination, its impression upon the plate will first be very faint—perhaps too faint for any impression—and towards the end stronger and stronger, and then still further enlarged by the phenomenon of so-called photographic irradiation. Bisecting the resulting trail by our micrometer wire, we get a place which belongs to a later time than the middle of the exposure.

Since it is only a question of time, when nearly all observations of faint minor planets will be made by photography, it is very desirable that such problems are given our careful attention.—*Astronomy and Astro-Physics.*

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

21,675. James McLachlan Dobson, 96, Buchanan Street, Glasgow.—"Improvements in and Relating to Carriers for Photographic Dry Plates."—*November 14th*, 1893.

21,686. Wallace Fairweather, 62, St. Vincent Street, Glasgow.—"A Reflecting and Ventilating Device or Apparatus for Photographic Exposure by the Magnesium Light."—*November 14th*, 1893.

21,727. Oliver Imray, 28, Southampton Buildings, Chancery Lane, London.—"Improvements in Photographic Cameras" (The Magic Introduction Co.).—*November 14th*, 1893.

21,880. Edgar Clifton, 106, Regent Street, London.—"A Portable Apparatus for Producing Enlarged Copies of Photographs."—*November 16th*, 1893.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

November 23rd—Mr. R. Beckett in the Chair.

Mr. Birt Acres described the working of the carbon process assisted by Mr. Skelton, who practically demonstrated the laying down and development of the exposed tissue. Mr. Acres began by describing the character and transparency required for reproduction and for the lantern. He noted that it had been advised, in order to obtain vigour, that the tissue should be kept until nearly insoluble. The plan which he recommended was to print in direct sunlight, by which much more vigour was obtainable. With blue or black tissue, too, more vigorous prints resulted than when sepia was used. One characteristic of the carbon process was that the print was of one colour throughout. With a silver print there might be one colour of the half-tones, and quite another in the deep shadows. With carbon this was not the case. The sensitiveness of the carbon tissue was, he said, about the same as that of ordinary albumen paper. The paper on which prints were made by the single transfer process was prepared by being coated with a solution of gelatine, one ounce in ten ounces of water. To this was added three drachms of a solution of chrome alum, containing thirty grains of that substance to the ounce of water. In developing the prints considerable modification might be made by locally developing with hotter water, and locally restraining with cooler water. For double transfer, opal glass ground and rubbed with talc, and then coated with collodion, was used. With opal, said Mr. Acres, very much finer results were obtained than with any flexible support. There was always some loss of quality in double transfer, so that it was better, when several prints were required, to make a reproduced negative, reversed in direction, and print from that.

Mr. J. Barker inquired whether the colour of the tissue had any influence on the continuating action?

Mr. Acres thought not.

Mr. Cowen said that Mr. Acres had not mentioned the safe edge, which was understood to be necessary.

Mr. Acres replied that it had been said on authority that it was absolutely necessary to put the safe edge on the back of the negative. The prints now developed were, however, made with the safe edge on the front.

Mr. A. Mackie inquired whether tissues of different colours required different exposures.

Mr. Skelton thought not.

A large number of slides, some on carbon tissue, and a few on gelatine plates, were shown in the lantern. Amongst these was a gelatine slide and a carbon transparency from a reproduced negative made from the gelatine slide. Mr. Acres stated that there was in this case no loss of the gradation of the original. Several members, however, strongly disputed this statement, and pointed out places in the lighter portions where the gradations of the original were wanting in the reproduced slide. The lantern exhibition was not concluded until after the usual hour for closing the meeting, and, as Mr. Acres announced he had to catch a train, no further questions were put.

Brixton and Clapham Camera Club.

Ordinary Meeting, Tuesday, November 21st, 1893.

Mr. W. Thomas read a paper on "Skies," which, he said, could be produced in photography in one of two ways—either by photographing on separate plates for the landscape and sky respectively, or by securing the sky on the same plate as the landscape. He preferred the former method, one advantage being that it was easier to allow the correct exposure for the two portions of the picture. In exposing, he uses a Tylar's window shutter, and sets it for the landscape before stopping down the lens, exposing gradually for the foreground, and quickly for the sky. Development should be carefully performed, since the sky must not be too dense. A large stock of negatives of skies should be kept, and the greatest care exercised in printing, so that the lighting may be the same as for the landscape, the clouds occupying their correct position. Several specimen prints and negatives were submitted for inspection, and generally admired. The methods of printing in clouds in prints, enlargements, and lantern slides were also fully explained, and several dodges described.

Next meeting, December 5th.—Open lantern night.

Hackney Photographic Society.

November 20th.—Ladies' Night.

An entertainment was given by Mr. Rennie, entitled "The Forth Bridge," illustrated with lantern slides. The lecturer dwelt upon the subject from an engineering point of view. The slides included the building of the bridge at various stages, launching of *caissons*, banquet, the Prince of Wales driving the last rivet, portraits of celebrities in connection with same, &c., &c.

A further exhibition of members' slides was put through the lantern, and some excellent toned pictures were the result. The lantern was worked by the Hon. Sec., Mr. W. Fenton-Jones.

Members were specially asked to attend a meeting to be held on Tuesday, December 5th, when a discussion upon the Society's outings will be brought forward.

Ashton-under-Lyne Photographic Society.

On Wednesday evening, November 22nd, Mr. William Moss gave a very interesting and successful demonstration on "Micro-photography."

Dr. Hamilton, in introducing him to the meeting, said this was a new branch of photography, and, if it could be brought to perfection, it would be of immense service to the profession to which he belonged.

Mr. Moss, in opening, explained the working of his camera, which he had had made specially for his own use. It combined long extension and ease of working with perfect rigidity. The lens tube was one made short, and it took the place of the ordinary tube on the microscope stand. The light used was the usual powerful paraffin lamp. Mr. Moss explained that the lenses were microscopic objectives, and were better if corrected for photographic purposes. They were [illegible] in., 1 in., and [illegible] in. focus, and with these the power of magnification ranged from three times to 200 times. If a smaller enlargement were required, the ordinary photo lens could be used. Exposure varied much from two seconds to hours. A slide representing a subject to which he had given much time and study—the tongue of the snail—was put in the microscope, and after focussing on the ground glass, clear glass was substituted, and a compound focussing glass used to bring the object into perfect focus.

The clearness of the image obtained by this method was evidently new to most of the audience, and was much appreciated.

The next object photographed was a very small shell, being one of a number sent by the Rev. James Hadfield from Lifu, in the Loyalty Islands; and in it has been discovered a distinctly new variety. Both objects were successfully developed, and handed round the room. Mr. Moss brought with him a large number of prints, which were very much admired, both for the delicate beauty of the objects and for the successful manner in which they had been brought out.

A hearty vote of thanks was passed by the meeting to Mr. Moss for his very instructive demonstration.

Leeds Photographic Society.

Meeting held on Monday, being the members' lantern night. A large number of slides representing summer outings, were thrown upon the screen, contributed by the following gentlemen:—Messrs. Atkinson, Riffin, Butterworth, Rotwell, Walker, Denham, Burrell, Denison, Hampshire, Armstrong, Washington, Teasdale, and Dr. Jacob. Criticisms were invited, and questions answered regarding the developer used. Much useful information was elicited.

Metol, in the hands of Mr. Walker, produced excellent results; exposure about one-half, proving that this last friend to the photographer—metol—has come to stay.

A very pleasing and interesting evening was spent. The Chairman (Mr. J. H. Walker) at the close announced that on December 7th Mr. Godfrey Bingley would give his lecture on his summer rambles, with slide illustrations.

Birmingham Photographic Society.

Ordinary Meeting, November 21st.—Mr. W. Jones in the Chair.—About thirty-five members present.

The collection of slides, which were recently shown by invitation at the Exhibition of the Photographic Society of Great Britain, were passed through the lantern. They were representative of the best slide-work of the Society, and afforded a very pleasant evening to those present.

Newcastle-on-Tyne and Northern Counties Photographic Association.

Meetings for December.

December [illegible].—Lantern Manipulation, with Exhibition of Novelties and Demonstration by Mr. John Watson.
" 19.—Conversational Meeting.

ANSWERS TO CORRESPONDENTS.

. *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Indignans.—Your suggestion that the photographic societies should get up an agitation against advertisement hoardings in rural districts would be worthy of consideration if a better means to stop the nuisance had not presented itself. A Bill is now being introduced in Parliament, the preamble of which states that it is desirable to prohibit the raising of unsightly erections which destroy the rural scenery of Great Britain and Ireland. This Bill provides various fines for the exhibition of advertisements on fences, gates, trees, posts, &c., and quite covers the ground intended.

F. J. P.—Yellow stains after hydroquinone development are not uncommon. A preparation has just been, or is about to be, placed upon the market by Hauff, of Germany—"Thiocarbamide." Three hundred grains are dissolved in a quart of water with [illegible] grains of citric acid. Apply to the dealers for it.

J. K. C.—There is no difficulty in telling the sensitive side of a celluloid film when it is wetted, however defective the eyesight may be. The swelling of the gelatine causes that side to become slightly convex. Try the Eastman dodge of securing one edge of the film in the dish with a piece of bent whalebone.

Saxon.—Use some ultramarine mixed with the white to correct the yellow tone complained of.

M. C.—We know of no cure for the accident. Your best plan will be to precipitate the silver with hydrochloric acid, or salt, and to send it to the refiners.

Alpha.—If the enamelled dishes are perfect you can use them without fear, but if the enamel is cracked or split so as to show the metal beneath the dishes must be discarded for the purpose named.

King W.—We prefer to albumenise the glasses all over rather that simply edge them. When the glasses receive their final wash under the tap, it takes but a few seconds to flow them with albumen—twice—before racking them up to dry. Avoid dust.

Emma C.—Your triplet lens will do the work, but its long focus is against it. A portrait lens would for this reason be more convenient.

Lantern Screen.—If you want the best results from a home-made article, employ good canvas, and take care that the seams are horizontal, not vertical. Prime with very thin glue, then coat with ordinary whitewash, and finally paint over carefully with zinc white. This procedure will give you about as good a screen as it is possible to make. It must be kept flat or rolled.

J. C. A.—We should not advise you to pay such a heavy premium. It would be far better to send the boy to one of the excellent schools now to be found in so many of our public institutions.

J. C. W.—If your films cockle to such an extent under the heat of the enlarging lantern, we should advise that you employ two pieces of patent plate glass, and place the films between them. The carrier will be sufficient to hold them all firmly together.

B. L. O.—Burnt sienna ground in water can be purchased at so much per pound of most artists' colourmen. Other less known colours can be had in the same pasty condition at many oil-shops in the neighbourhood of Drury Lane, where they are kept for the use of scene-painters.

Patent Office Library

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1840. DECEMBER 8, 1893.

NOTES.

A PRINTING-OUT platinum paper, prepared by Dr. Adolph Hesekiel, which has for some time been known in Berlin as Korn Platia Paper, is about to be introduced in England by Messrs. Arthur Schwarz & Co. From specimens which we have seen, the paper is evidently capable of giving fine results. It is a grained paper, and is prepared in three different grades of coarseness, numbered 1, 2, and 3, No. 1 being the finest. The grains are formed by cone-shaped prominences of such regularity that, according to Mr. Warnerke, a negative taken from a Platia print, illuminated by oblique light, is sufficiently cut up into dots as to serve for the preparation of a photo-mechanical printing block. The paper can be used either damp or dry; damp when the negative employed is thin, and dry when it is of normal character. The printing of the latter averages twenty-five minutes; but the paper, when damp, is far less sensitive to light.

Mr. H. N. King, of Shepherd's Bush, has lately had the honour of submitting to the Duke of Saxe Coburg and Gotha his series of photographs representing the private and State apartments at Clarence House. The Duke is so pleased with these pictures that he has since, by Royal Warrant, appointed Mr. King landscape and architectural photographer to His Royal Highness.

Some months ago Mr. B. J. Edwards, of Hackney, showed us a model double-back, which he had designed, which was mainly constructed of metal. This back he has now placed on the market as the Edwards Dark Slide, and it will be found to possess many advantages. It is light and compact—three double-backs, measuring only one inch in thickness, collectively—and it is remarkably cheap. Mr. Edwards has also introduced a very ingenious film-carrier, for use with ordinary dark slides. To both of these ingenious devices we will direct further attention at an early date.

On the 12th inst. Mr. F. E. Ives—we were going to write "of Philadelphia"; but this is unnecessary, for Mr. Ives has happily now resided long enough with us to be regarded as a Londoner—will read a paper before the parent Society, entitled "Observations on the Lumière-Lippmann Colour Photographs." This paper is likely to attract many hearers; for the Lippmann photographs have aroused much interest since their recent exhibition at the Society of Arts, and also because Mr. Ives has made a study of colour in connection with photography, and therefore speaks with the voice of authority.

To-night (Friday) Mr. Brooker, of Hastings, will give, at the Central Photographic Club, a lantern lecture on Winchelsea and Rye. These two old-world places are so near Hastings that Mr. Brooker has had a better opportunity of recording their features with his camera than most persons. Both places are full of interest by reason of their historical associations, if not for their picturesque remains. A pleasant and instructive evening with the lantern may, therefore, confidently be looked forward to.

In notifying the appointment of Mr. H. H. Turner, the Secretary of the Royal Astronomical Society, and Chief Assistant to the Astronomer-Royal, to the Savilian Professorship of Astronomy in Oxford, vacated by the death of Professor Pritchard, two or three papers have described Mr. Turner as having been for several years editor of the *Observatory*, the only English magazine exclusively devoted to astronomy. This is not quite correct. Mr. Turner has only recently been sole editor of the *Observatory*. For some years before this he filled the duties conjointly with Mr. A. Common.

Mr. Garner's method for making the gorilla photograph himself was certainly ingenious, and it is a pity he did not have better luck. He has been telling an interviewer how he tied a bait to a string attached to the shutter of a kodak, and set the kodak where the gorilla would come across it. The gorilla went for the bait, pulled the string, and of course was photographed. Unluckily, two of the negatives got broken during the journey home, while the third was not a very good one. This is a pity. But it is ever the cherished negative which comes to grief.

Lady astronomers are not confined to Miss Everett and the staff of female assistants at the Greenwich Observatory. A good deal of the work of preparing the chart of the heavens, so far as Paris is concerned, is being performed by ladies, under the superintendence of Mdlle. Klumpke, assisted by Madame Peakereau, whose husband is a director of one of the French Observatories.

Sir John Tenniel is not so fastidiously correct in the drawings of (to him) unfamiliar objects as is Mr. Linley Sambourne. The latter, if he cannot get hold of the real thing, procures a photograph, and the consequence is he rarely if ever makes a mistake. Sir John in his cartoon of last week excited the amazement of cyclists by putting Mr. Fowler on a bicycle without any saddle, and by making him pedal with his heel. In purely technical matters even the most experienced may go wrong, and an almost front view of a bicycle and its rider is not an easy thing to do. This is where a photograph would come in handy.

Some curiosity has been expressed whether the revised American tariff will make any reduction in the duty on imported photographs. It is said the duty hitherto imposed on works of art is to be abolished, but a picture is one thing and a photograph another. It has never been contended that English pictures have injured American art sales, but very different opinions may be held with regard to photographs.

As a sitter Mr. Gladstone holds a high place in the estimation of photographers. The late Earl of Beaconsfield detested the operation, and could rarely be induced to sit. Lord Salisbury is not a good sitter; he lacks animation, and resembles his famous ancestor, Lord Burleigh, in his taciturnity. The Duke of Devonshire seems to be hopelessly bored; but, then, it is part of his nature to be bored by everything. Mr. Goschen has a nervous movement of his lips, which is exceedingly trying. Lord Randolph Churchill carries his not very conciliatory manners into the studio, and in this respect he is the very reverse of Lord Rosebery, whose amiability makes him one of the pleasantest of sitters.

We are requested to note that the date for sending in pictures for the Bristol International Exhibition has been extended to to-day. The judges are Messrs. Alfieri, V. Blanchard, S. P. Jackson, P. Jennings, and the President of the Association, H. Hood Daniel.

A correspondent of the *Journal of the Photographic Society of India* states that when in Vienna recently, the President of the Society there—Herr Schrank—showed him "a coloured positive of the Lippmann kind, which I understood him to say was a specimen from a colour process he had tried over thirty years ago." This is another illustration of the disappointments connected with photographic research. Someone has always done it before.

The following are the lecture arrangements of the Royal Institution before Easter:—Professor Dewar, six lectures (adapted to a juvenile auditory) on Air—Gaseous and Liquid; Professor Charles Stewart, nine lectures on Locomotion and Fixation in Plants and Animals; the Rev. Canon Ainger, three lectures on the Life and Genius of Swift; Mr. W. Martin Conway, three lectures on the Past and Future of Mountain Exploration; Professor Max Müller, three lectures on the Vedânta Philosophy; Professor W. H. Cummings, three lectures on English Schools of Musical Composition (with musical illustrations); the Right Hon. Lord Rayleigh, six lectures on Light, with special reference to the optical discoveries of Newton. The Friday evening meetings will begin on January 19th, when a discourse will be given by Professor Dewar on Scientific Uses of Liquid Nitrogen and Air; succeeding discourses will probably be given by Mr. A. P. Graves, Mr. T. J. Cobden-Sanderson, Professor W. F. R. Weldon, Professor Silvanus P. Thompson, Professor John G. McKendrick, Dr. W. H. White, the Right Hon. Lord Rayleigh, and other gentlemen.

* * *

The South London Photographic Society, which meets at Hanover Hall, Rye Lane, Peckham, S.E., have issued a most attractive winter programme. On the 18th inst. Mr. Fry will discourse on the making of lantern slides. Early in February Mr. A. R. Dresser will show how he enlarges his hand-camera negatives, and soon afterwards Mr. Snowden Ward will describe his recent trip to the States. "Photographic Chemicals, and how to test their Purity," is a useful subject which will be tackled by Mr. R. H. Richards, and there are many other good things on the programme of this "up-to-date" Society.

A TOUR IN BELGIUM.

BY CECIL M. HEPWORTH.

IV.—GHENT.

OUR last day but one had arrived, and by ten o'clock the train was bearing us out of Brussels; past the suburb of Laekin, and on through that same broad stretch of flat pasture that we noticed on our way hither. And how hot it was! The sun seemed to beat down upon streets, houses, and vehicles with a perfectly tropical perpendicularity which was most trying, and suggested vague longings for man's primitive state. The streets were like furnaces, and the railway carriages like ovens warmed thereat. We sat and melted and groaned, until one of us noticed that the inside of the car was profusely decorated with curious and intricate mechanical devices, which, from the legend borne by one of them, were designed to overcome our trouble. This instrument took the form of a large lever, working over a semicircular graduated scale, at opposite ends of which were inscribed the mystic symbols, "Warm" and "Kalt." As soon as the significance of these words dawned upon us, we stormed that handle, in a way that astonished the only other occupant of the carriage—a "Poulet blanc" we called her, she was so like a dish we had had for dinner the night before. Our united efforts eventually triumphed, and we shoved that lever over to "Kalt" as far as ever it would go. But alas for our hopes! We waited feverishly for full five minutes, but nothing happened, and we sank back in damp despair. We dare not for the life of us try any of the other dodges, for fear we should inadvertently close up what little ventilation we already had. Besides, the walls of the carriage were thickly placarded with "Avises" and "Warnungs," in words as long as the carriage itself, and the unknown terrors contained therein struck such fear into our hearts that we dreaded to meddle in it at all.

THE HOTEL DE VILLE, GHENT.

After simmering gently for one hour, as the cookery books say, we arrived at our destination, when we resigned every bit of clothing which decency and self-respect permitted us to doff to the tender mercies of the "baggage Sally," and made our way out into the open air. The ancient city of Ghent, the capital of Eastern Flanders, is mentioned in history as early as the seventh century. The inhabitants—chiefly weavers—seem to have been a very turbulent and independent race. About the beginning of the fourteenth century, the celebrated "Brewer of Ghent," Jacques Van Artevelde, though really of high birth, became a member of the Brewers' Guild so as to get into the good graces of the working classes. In this he was successful, and, being both rich and eloquent, he quickly became an exceedingly influential member of the community. Having been appointed Protector of Flanders, he benefited his city by an alliance with England, but, after an absolute monarchy of seven years, during which he killed or banished any who displeased him, he was murdered by a body of insurgents who objected to one of his schemes.

From that time forward, the Ghenters became more and more discontented and turbulent, and riots and revolutions were matters of very frequent occurrence. At length, Philippe le Bon of Burgundy levied upon them a heavy tax on salt, and the citizens instantly declared war against him, a war which they were able to maintain for five years. At the end of that period, however, they were obliged to give in, and the more important citizens had to march about with halters round their necks, and kiss the dust at the feet of their conqueror.

This must have been very unpleasant.

The city of Ghent, as seen for the first time from the Place de la Railway Station, or whatever they call the space in front of the "Gare," presents a decidedly prosperous appearance. People are trotting about as merrily as if quite oblivious of the abnormal heat; milk carts, vegetable carts, meat carts, dog carts, horse carts, donkey carts, and carts propelled by men or women rattle cheerily over the stones. In the distance rise the spires of cathedral and belfry and church, forming the key-note of many a picturesque snap-shot. Making our way first towards the cathedral, we find it to be a somewhat ugly building outside, but with a richly decorated interior. Close by is the belfry, a large square tower, which I need hardly say has never been finished. These Belgians always seem to have made up their minds to build a tower higher than anyone else, and, after working at it for three hundred years or so, apparently get tired of it. They then clap on an iron or slate roof, and pretend they never meant it to be any higher. It is the same at Mechlin Cathedral. At Antwerp one tower is finished, while the other is scarcely begun. Close here is the Hotel de Ville, built at the corner of two streets in two entirely different styles. The picturesque face in the Flamboyant style' is said to be the most beautiful piece of Gothic architecture in Belgium. The street is so narrow that it is impossible to photograph it with a hand camera, but the other façade in the broad market-place offers greater facilities to the camera-man. But, just as we were about to photograph it, the rain came down in torrents, and we were obliged to take the shelter afforded by some trees near at hand.

The shower was soon over, and the sun came out again with all its brilliance, licked up the water, and did its best to make the air as dry and furnace-like as before. Having taken our photograph, we wandered on again, and down by one of the numerous canals we find the Church of St. Nicholas, the oldest in Ghent, clustered round with mean little houses, which look as if they consisted of fronts only, stuck on to the side of the church with putty. The view from the Marché aux Grains, showing this church and the belfry in the distance, is very picturesque.

CHATEAU DES COMTES, GHENT.

Ghent is cut up into hundreds of little islands by its many canals, which cross and recross the town in all directions, from which the dank, green buildings rise up sheer out of the water, forming many a picturesque nook. Close by here there is a canal, almost out of the centre of which rise the walls of some old monastery or ecclesiastical building, casting deep and gloomy shadows in the sparkling water, and looking almost like some huge aquatic fungus.

A little further down the canal we come upon what appears to be an ancient wharf, with one or two barges, looking as if they were placed there hundreds of years ago and forgotten. All around, like grim and sombre spectres of former magnificence, keeping greedy watch over treasures which are no longer theirs, rise the gloomy old houses of some of the merchants of Ghent. Grand and beautiful still in their crumbling old age, they still seem to try to keep up an appearance of their old dignity; but their owners are dead and gone, and time has bent them and warped them, until they look as if a touch would send them crashing and thundering into the murky waters below. It is like a bit of old Venice, and beautiful in the extreme.

Just over the bridge is a curious old castellated gateway, which we were told is all that remains of the ancient Castle of the Counts. It was here that the Brewer of Ghent entertained with regal splendour King Edward III. of England, and his wife, Queen Philippa, and it was here also that their son, John of Gaunt, was born, in 1340. If ever anyone asks you who such and such a person was, from this date down to the time of Queen Victoria, say he was a descendant of John of Gaunt, and ten chances to one you will be right. His descendants are as the sands of the sea. His name crops up on every page of history as somebody's ancestor, to the utter mystification and disgust of the poor school

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THE CHURCH OF ST. NICHOLAS, GHENT.

children, who so laboriously thread the mazy paths of historical knowledge.

Once more down by the water we came upon an open passage at the other end of which was a doorway opening on to the canal, from which a splendid view of the surrounding buildings could be obtained. The temptation to take my kodak into this unknown region was strong upon me, the more so as there was none to say me nay. Warily descending the steps I crept stealthily to the water's edge, and prepared to take the coveted picture, when a fiendish howl behind me startled me so that I almost dropped the camera. Turning quickly I saw, looming dark in the open doorway, the figure of a long bony female, who beckoned to me viciously with her skinny forefinger. "Kom oot," she said, "kom oot, kom oot." "Tout raison, madam," I said in my most suave manner, "retainez-vous votre cheveux." This last I considered a most delicate compliment, for the ugly old hen was not overburdened with ringlets. But she was not to be won by any such blandishments. Gesticulating wildly, she shrieked, "Oh! non, non, non. non, non; kom oot, kom oot," and I had to "kom oot," she helping me with a judicious lift by the scruff of my neck. Having deposited me, panting, once more in the open air, she slunk growling into her lair and slammed the door.

These tortuous canals are full of a deep and wonderful mystery, and a picturesque, almost weird, beauty which is a never-failing source of fascination to a tourist in this curious country.

Wandering along the banks, we note how still water reflects the radiant hues of brightly garbed peasants, or the gaily painted pink and yellow houses, and now and then the more sombre hues of some venerable pile, whose work is done and whose mission is almost forgotten. With a very slight stretch of imagination, one can conjure up a vision of golden argosies floating on the dancing water, and people the canal banks, the wharves, and the bridges with merchants dressed in mediæval costume standing in little groups, and discussing things commercial. As in most other Belgian towns, the carillon tinkles away merrily all day and all night long. Permission to erect a belfrey was generally the first thing asked by the citizens from their feudal lords, and from it peals were rung to call the burghers to council or to arms. The belfry at Ghent stands almost in the centre of the town, but it has long ceased to ring out anything more important than the time of day. One bell in the tower bears an inscription in Flemish to this effect: "My name is Roland. When I am rung hastily then there is fire, when I am rung slowly then there is a storm in Ghent." For this reason the citizens are quite content that Roland should hold his iron tongue, for with him speech is not "silvern."

The Manchester Amateur Photographic Society announce that an exhibition will be held under their auspices, at the Manchester Athenæum, on Tuesday, Wednesday, Thursday, Friday, and Saturday, December 12th to 16th. Pictures may be sent to the Athenæum (George Street entrance) any time after 9 a.m. on the 12th, in time for the opening of the exhibition at 7 p.m. on that day.

REMARKS ON HAND-CAMERA WORK AND HAND CAMERAS.

BY J. K. TULLOCH, M.B.

(Concluded from page 759.)

Of the few dozens of plates which I exposed in this camera, not one showed the slightest blurring, but, on the contrary, seemed to the naked eye, at least, to be as sharp as any stand camera picture. Once or twice I carried the camera out without the case (it has a leather handle for the purpose), stowing the slides in my pockets, but I found that the brass mounting of the lens, the spirit level on the top, &c., attracted too much attention. It is, however, the most reliable hand camera I have, as far as performance goes.

Having the dark slides, and having other lenses in my possession, I determined (keeping No. 2 just as it was) to design and make up camera No. 3. The conditions which I set myself to fulfil were these more particularly: that the camera must be light and small, and quite inconspicuous in appearance, so that it could be carried through the streets without attracting attention.

By this time I had given up the idea of having the camera itself weather-proof, a condition which, as I stated before, I did not see how it was at all possible to fulfil; and, even with regard to a weather-proof case for it, I had come to this idea, that a square of indiarubber cloth, carried in the pocket for emergencies, was all that was actually required.

I had now only one difficulty, and that was, how to fit neatly and inconspicuously a drop shutter to the camera, so that the whole apparatus might have the appearance of one box.

Although I gave much consideration to this question, I found no solution to it. I finally abandoned the idea of a drop shutter (which I am extremely partial to) with great regret. One would imagine that there ought to be little difficulty in enclosing a drop in the end of the box somehow; but a patent difficulty is this: if the drop is kept at "set," you must double the length of the shutter, which either sticks out awkwardly beyond the sides, or, if you make the body of the camera large enough to conceal it, makes a large camera. If you keep the shutter half way, no part projects; but the lens is now constantly exposed, and thereby liable to dirt or destruction. An easy way out of this difficulty would be to have a leather plug to place in the aperture of the shutter. This seemed to me to be makeshift and unsightly, for, by it, it entailed another movement, to be remembered and carried out at the moment of exposure.

Having abandoned the drop shutter, I cast about for a substitute. The conditions to be fulfilled were these: it must be small, so as to be enclosed as part of the camera; it must be constant in its speed, not over-fast; and, lastly, it must be easy of release and easy to make. All these conditions seemed to point to a pivoted quadrant of some kind, and this was the form I eventually adopted.

It will be easier to show you than describe camera No. 3. It is a plain mahogany box, covered with morocco, an oblong aperture at the back to take a dark slide, while the lens is carried on a false front, two inches from the actual front, and which two inches of space are taken up with the lens mount and shutter. The actual front fixes with a spring catch, so that I can easily get in to the diaphragm plate, while, at the same time, it gives facilities for the repair of the shutter, should such be needed.

The lens I use in this camera is a Wray 5 by 4 wide-angle landscape. When making the shutter, I arranged it so as to be actuated by an elastic band, and it worked smoothly and well. The speed was greater than I liked. It was getting well into October when this last camera was finished, and I found that the light was too poor to give me well-exposed pictures with this shutter. A trifling alteration made it, that I could drive the quadrant over by a touch of the finger, and this I found by experience to be an excellent idea. It was now possible to give exposures of almost half a second. It occurred to me, as it must occur to you, that, with an exposure so prolonged, definition was bound to go. To my surprise I found this not to be the case. Once or twice I did get blurred pictures, but in general they were quite sharp. Thinking over the matter at home one day, and making a few experiments to determine the matter, I found that the blurred pictures were not due to tremor of the hand, but rather to the general sway of the body on the legs.

At my next outing with my camera, I found that it was almost always possible to get something to lean on while exposing the plate, and from that moment I had no more blurred pictures. Until one has experienced it, he can have no idea how opportunity favours him in the matter of "leans." In the short time I have had this camera I have exposed a few dozens of plates, and not once have I been disappointed in a "lean." This is by no means only a matter for amusement—it has its important side. It simply means that throughout the year the hand camera need never be laid aside as useless. I may say, as a parting remark on camera No. 3, that it has proved in every way very satisfactory.

Being still possessed of the spirit of camera construction, and my material not being quite used up, I determined on a fourth camera. As in camera No. 3, I had sounded the depth, so to speak, of prolonged exposure; my aim now was towards very rapid exposures.

I have had in my possession for a good many years a diminutive portrait combination. The equivalent focus is about three inches, and it gives fine definition over a circle of about two and a quarter inches, with full aperture of about an inch. This was manifestly the very lens.

I have no wish to dwell on the making of this camera. Artists and nations are said to have their periods of gradual ascension and decline—clearly I was following the same law. I had reached the high-water mark of construction in camera No. 3, and there came to me the fixed and rooted notion that No. 4 would be a botch.

To set out upon any enterprise in this frame of mind was to bespeak failure. At every turn some cursed thing turned up to annoy and disconcert me. A piece of wood, which a moment ago measured five inches, now, for some unaccountable reason, measured six, my solder refused to run, the glue got thick and burned in the pot. Reverses are supposed to do people good in the long run; my reverses raised the very devil in me, I got more determined every moment; once I very nearly knocked off a finger with my hammer, I forbore to utter a single sound. I sat dogged with my finger in my mouth, and thought of Arnley's fine verse:

"In the fell clutch of circumstance
I have not winced, nor cried aloud
Under the bludgeonings of chance;
My head is bloody, but unbowed!"

It was under such circumstances as these that camera No. 4 was dragged into existence. The shutter, a modified roller blind, works fast enough, and, indeed, is the one redeeming point in the whole thing. Having no leather to cover the body, I used American cloth, and this turned out one of the biggest mistakes I made. American cloth is cold and clammy to the hand, and, being waterproof, the glue which fastens it on seems never to dry. I have exposed not more than a dozen of plates in camera No. 4, and, as was to be expected from such an ill-starred venture, every one, for some reason or another, turned out a failure. Only one good negative out of the lot, and the mark of Cain was upon it, in the shape of a running boy with legs in ridiculously preposterous positions.

Having now described my four cameras, this incident of the running boy suggests to me the remarks I have to make upon hand-camera work. In my reading up of the subject, I notice that both Mr. Dresser and Paul Lange recommend a swift shutter. I confess to not seeing the force of this.

If these gentlemen have light, and lenses, and plates requiring so short an exposure, I have nothing to say If, on the contrary, a high speed is thought to be necessary, either to prevent the appearance of hand-shake in the picture or to take without signs of movement rapidly moving objects, then I part company from them here.

I have proved to my own satisfaction that a very prolonged exposure may be given without signs of hand-shake in the picture; and, as for the photographs of rapidly moving objects, is it not a great mistake to photograph them at all? Examine a photograph of a street scene. Let us say that it is such a scene as requires a very fast shutter—that is, where the moving objects are not far from the camera. Can anyone seriously argue that the resulting pictures, with their novel, if not grotesque, posing, are things of beauty? Is it not rather the fact that, in a great many instances, the postures of both men and beasts suggest drunkenness or imbecility? The argument that the positions shown by instantaneous photography are the correct ones, and that the poses and positions painted by artists are conventional and erroneous, will not stand a moment's serious consideration. When an instantaneous photograph of a number of persons moving about is shown round, what is the very first thing that is noticed and remarked upon? Is it not the ridiculous position of the limbs, and the apparently impossible attitudes in which the individuals are discovered?

Why should these things appear so absurd and strange?

Do we not all day long see people walking up and down in every-day life? How can any representation such as this be said to represent what we really see when nobody recognises the truth of it—nay, I go a step farther, when the great bulk of people even deny the possibility of its truth?

To say that we have all along been deceived by the artist, and that, when we have outgrown the bad lesson, we will see the truth of the photograph, is nonsense. How has it never occurred to mankind that he was being deceived before? He had all along his every-day experience and his eyesight to guide him. The truth is, photography renders outside nature *not* as we see it, but as it really is, a very different thing.

There is a wide sphere and a great future for the hand camera; but, in my opinion, the first lesson that must be learned is what the hand camera can *not* do.—*Dundee and East of Scotland Photographic Association.*

THE SPEED OF PLATES: A CRITICISM AND A REPLY.*

BY H. M. ELDER, M.A.

A GOOD many attempts have been made at various times to measure and set out numerically the speed of a photographic dry plate. Some have been more, some less, scientific; some have been based on a study of the nature of the plate and the action of light upon it; and others have been purely arbitrary. They all, however, seem to suffer from one defect—viz., that no one has ever yet given a sound definition of the "speed of a plate"; and, consequently, in these methods of speed determination the quantity found and investigated depends not only upon the nature of the plate, but upon the method of investigation; and the "speed" is explicitly or implicitly defined to be some quantity that has cropped up in the course of investigation rather than a constant of the plate itself.

This being so, it seems to be worth while to try whether some sound definition cannot be given of the term "speed of a plate," and whether this quantity can be expressed in definite numerical terms.

The most natural definition of "speed" that can be given would run something like the following:—

One plate may be said to be twice as fast as another when the two being exposed under the same conditions the slower plate requires twice the exposure of the faster, in order that when the negatives are complete they may be identical.

The first objection to this definition is the tacit assumption that it is possible to make two exactly similar negatives on two different plates. It is certain that this cannot always be done, To take an extreme case, it is absurd to suppose that if a slow plate, thickly coated and rich in silver, so exposed as to give a round and sparkling negative, be taken for one, and a thin foggy plate, poor in silver, for the other, a negative as rich and round and sparkling can be produced on it as on the slow plate. Our definition, therefore, fails from the nature of things at the outset. And this leads us to consider whether the quality "speed" is really a property of the plate alone. In a certain sense no doubt it is, for it is clearly impossible to expose a slow plate with a rapid shutter in a dull light and get results, although if a quick plate be substituted a good negative may be obtained under otherwise identical circumstances.

The fact is that the quantity we are accustomed to think of as speed is a highly complex quantity, and depends on the nature and make of the plate, the circumstances under which it is to be used, and the treatment to which it is to be subjected; more even than this, too, it depends on the result which it is desired to obtain; in fact, paradoxical as it may sound, the speed of a plate depends on its future history as well as on its past. For a long time since a terrific wordy war has raged over the question whether the "speed of a plate" is dependent on the development or not, although possibly Messrs. Hurter and Driffield, whose position has been attacked, would never have affirmed that it was not. But now it may probably be said that they have withdrawn from the position that they did take up—viz., that the ratio of gradation in a negative cannot be affected by development.

The only rational definition of "speed" that depends solely on the nature of the plate, and not on any hypothesis that can be given, having been shown to fail, the question arises—What can be done to give the photographer some idea as to the relative exposures required by different plates? It is required to choose some property of a plate that can be expressed numerically, which will give the user some rough idea as to whether if Plate A requires five seconds under given circumstances to give a good resulting negative, Plate B will require seven, or ten, or thirty. It is impossible, as has already been shown, to give more than a rough idea, and this will appear still more plainly in what follows. Let us first consider the result that it is required to obtain—viz., the finished positive print or transparency.

Now it has been held by the combatants in this discussion, and especially by Messrs. Hurter and Driffield, that the scale of gradation of the finished result is required to be the same as that of the scene pourtrayed. When this desideratum is attained, the print, they say, is photographically true, and the result is perfect. Surely this is contrary to all our knowledge up to the present time. Except for special purposes, such a print would be flat, stale, and unprofitable. It must be remembered that in working on paper or canvas we are not working between anything like such wide limits of darkness and light as occur in nature, but between the relatively narrow limits of black and white. Yet in these limits it is required to give the impression of darkness and light. How is this done? Ask any artist, and he will say that in working on canvas he consciously exaggerates his contrasts. A bit of yellow paint, dull and without lustre of itself, shines and glistens with the lustre of a gold ring when cleverly backed with a heavy shadow.

(*To be continued.*)

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* Paper read on Thursday, November 23rd, at the Camera Club. Communicated by the Author.

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, DECEMBER 8, 1893.

All Advertisements and communications relating to money matters, or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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SUNNY PHOTOGRAPHS.

WHEN the givers of medals and other prizes have exhausted their energies in finding out novelties in the way of competitions—by which time possibly each amateur photographer will own enough metal to construct for himself a suit of armour—they might offer a prize for the most *sunny* photograph—that is, the picture which shall best express the warmth and general aspect of a sunlit landscape. For drear December has fallen upon our art; and although we must expect that gloomy month to precede the glad new year, we do not care for its continual presence all the year round. But many photographers prefer that it should be so, and seem to do their best to chase out of their pictures every evidence of sunlight. Nature must show no sign of rejoicing; the sun must hide its face, and gloom and sadness must prevail, as if some great catastrophe had happened, and fields, trees, and sky had resolved by common consent to put on mourning garb.

In the praiseworthy endeavour to turn out photographic landscapes which shall be artistic in quality, many of the modern workers would seem to have stumbled into a particular way of working, the effect of which is to produce exceedingly sombre results. One reason for this is that they aim too much at copying the style of certain painters whose delight is in grey days and subdued tones. They dislike sunshine, as some people hate fresh air, and treat it as a nuisance to be rigorously avoided. Another reason is that a sunlit landscape is more generally than not crowned with a blue sky, and a blue sky cannot be represented in a photograph, the nearest approach to it being an expanse of white, which is a thing that no good photographer would countenance nowadays, although a few years ago it was common enough even in exhibited pictures. It is now almost the universal practice to furnish a landscape with a clouded sky from a separate negative, and everyone knows what very beautiful effects can in this way be secured. But it is obvious that if the associated landscape be taken in sunshine, with strongly accentuated shadows, it will be very difficult, if not impossible, to find a cloudy sky which will not form for it an incongruous mate. The most obvious method of getting over the difficulty would be to choose a day for the work when there are alternations of sun and shade, when a double exposure might be made, one for the landscape, and another from the same point for the sky, at a moment when the clouds assumed a favourable appearance. It is certain that a broad expanse of country, lighted by a blazing sun from a sky without a cloud, presents one of the most uninteresting phases of Nature, although it is to some extent redeemed by colour. But when such a landscape is photographed, and the colour is necessarily left behind, nothing but a mere map remains, and the photographer who understands the limits of the materials with which he works will naturally reserve his plates for something likely to reward him better. He will leave the landscape until such time when clouds flit across the sun and cast their shadows on hill and dale, so that he can choose his opportunity for securing the particular effect at which he aims.

Many of the most charming effects of sunshine are seen in a wood, when the light is in front and renders the foliage semi-transparent, bathing the whole neighbourhood in green light. Wherever there is an open space amid the trees, there the brilliant light pours in and lights up particular trunks and masses of undergrowth with marvellous effect. But such a scene will give a most disappointing photograph. By no possible means can we reproduce the green glow of the transmitted light, and as for the lighted-up trunks and undergrowth they will come out in our picture as a patch of snow-covered ground, amid a flat mass of blackened foliage and tree trunks. This is a legitimate subject for a grey day, and with a little care the experienced worker will be able in a dull light to get almost the effect of sunshine though sunshine be absent. Or another course is open to him. He may postpone the time of exposure until the late summer afternoon, when the sun is low enough to get tinged with orange. Then an isochromatic plate, a small stop, and a long exposure will give him what he wants.

It is certain that the advocates of grey-day photography have many arguments to put forward in favour of their choice. We have already seen that woodland scenes are best portrayed when the contrasts of light and shade are not too strong. So it is when figures form the principal feature of an outdoor study. To such a subject direct sunlight is ruinous, as it is in the case of a group photograph. There are also certain architectural subjects with northern aspects upon which the sun never shines—subjects which can only be satisfactorily photographed when masses of cumulus throw a brilliant reflected light upon them. Every practical photographer will call to mind such examples, and will remember how he has often been obliged to wait, sometimes for months, before the right kind of day came round.

But although we willingly grant these exceptional cases, we must plead for some recognition of the beauty of sunlit landscapes. They are at their best in the late spring or early summer, before the leaves have had time to sacrifice any of their early tints to the sun's heat. At this time of year, too, we get that scudding of fleecy clouds across the sun's disc which we hold to offer the best opportunity for such photographs. We trust that the spring of 1894 will not pass away without some attempts to photograph Nature in her most smiling aspect.

LIGHT IN PHOTOGRAPHY.

ON Thursday, last week, Mr. Calland read, at the Camera Club, a paper which had for its title "Notes on the Rendering of Light in Photography." There was not much to say on such a subject which had not been said before, and the speaker at the outset modestly disclaimed, on this ground, any originality for his remarks. The paper dealt principally with the expression of sunlight in a photograph, and the best way of attaining that effect; and prints to illustrate the author's remarks were handed round, together with diagrams showing the translation of colour into photographic monochrome.

Like many other papers, this one gave rise to a discussion more important than itself. We have no intention in saying this to underrate the value of Mr. Calland's words, which were evidently the outcome of serious thought and conviction; but if two heads are better than one, we must take it for granted that half a dozen heads or more are better still; and there were more than half a dozen good heads to join in the discussion on Mr. Calland's paper.

The President of the Club (Captain Abney) occupied the chair, and he called upon Mr. Humphery to open the discussion. This is a part which Mr. Humphery has often played, and one which he invariably plays well, for there is always an under-current of quiet fun in what he says, and this has the invariable effect of putting an audience in good humour at the outset. Moreover, some of them have the notion that they can "do one better," and although they do not succeed in their endeavours, the attempt is praiseworthy, and lightens their utterances. On this occasion, Mr. Humphery had to admit that the paper offered little that one could take hold of, and he expressed some disappointment that it did not open up better opportunity for a good fight. The Rev. Mr. Lambert trumpeted forth a more certain defiance to possible adversaries by describing two methods of working. One, he said, was the black and white or proportional method, in which the bright sun represented one end of the scale, and the other was the caricature method, where the lower tones were more or less proportioned, and the upper ones were left to take care of themselves. It was, he would say, to the Impressionist, as if you drew a six-foot man reduced to inches, and began with his boots and increased to life-size by the time you arrived at the top of those necessary helps to locomotion. Then came a few sensible remarks with regard to the illuminating power of the sky apart from its mere blueness, and a quotation from Ruskin, which must strike awe into the mind of the Impressionist, to the effect that one of the great characteristics of sunshine is sharpness of shadow outline—the truth of which axiom may be proved by observing photographs taken in Egypt or any other sunny land. William Hunt furnished another maxim to the effect that if you want to express sunshine you must have shadows to back it up, and these truths were emphasised by reference to the practice of certain painters. Mr. Briant was the next speaker, and recommended his hearers, if they wanted to express the idea of sunlight, to under-expose their negatives, and develop them as thinly as possible. This brought upon the scene a speaker who begged to say that he disagreed entirely with Mr. Briant's remarks. He himself never photographed in sunlight; an avenue of trees was reduced thereby, with its shadows cutting it across from foreground to horizon, to a ladder rather than a grove of trees. Then up rose Major Nott, who said that when he listened to a paper like that which had been read, he could not help wondering why it was that others saw things so differently to what he did himself. The effect of sunshine was the very easiest thing to produce in a photograph, but the fact was that the art of making a good negative was almost lost. The present practice is to look out for some printing medium, which will give the best results with bad and doctored negatives. Mr. Davison complained that there was one disadvantage in coming in at the tail end of a discussion; one's half-fledged ideas, that have cropped up during its progress, are apt to get better expressed before one has the opportunity of giving them utterance. Major Nott had, perhaps, made the most popular speech of the evening, but there was really very little in it. He complained that we had lost the art of making good negatives, but he did not explain what kind of negative he meant, and as for seeking for a printing medium which should produce the best effects from a bad negative, he would ask, Why not? Certainly the practice had done much recently to call attention to the artistic claims of photography. He held that the fault in most pictures was that the shadows are too black. We should emphasise more what he would call the *lightness* of the subject, especially in open landscape, as was done in the specimens shown by Mr. Calland. Black shadows in such subjects suggest moonlight, while greater depth of shadow is desirable and necessary in street scenes. In a word, the *subject* must be considered, and treatment adopted accordingly. He thought that Mr. Calland had been unfair to our art in saying that it did not express sunlight so well as other methods of picture-making could express it. It certainly did so better than etching could, where you are limited to a series of lines instead of that fine range of tones which photography offers to those who care to take advantage of them. Mr. Kenrick Murray said he had, during this discussion, been mentally regarding certain pictures in his album which certainly gave the effect of sunlight, and he had been trying to remember under what conditions they were taken, and he believed the effect was due to the angle at which the light fell upon the subjects. He thought that photographers generally preferred to work in sunlight, because broad effects were thus more readily obtained, and printing became easier.

The President, in winding up the discussion, pointed out the shortened scale with which the photographer had to content himself compared with that presented by sunlit Nature. Taking platinum black as the deepest shade obtainable, it would be found that it reflects about one-thirtieth the light reflected by a piece of white paper. Suppose that we assume that the deepest shadow in Nature is the same as platinum black, we find that sunlight is at least as 120 to 1. This has to be compressed in a photograph to 30 to 1. Between the high-lights and where the shadows begin there is a hiatus, and the whole of the scale between 30 and 120 has to be sacrificed to the high-lights. A true gradation between the high-lights and the beginning of the shadows is an impossibility. What was a shadow? Stick an alpenstock or ice axe in sunlit snow, and its shadow—which reflects only one-fifth, twelfth, or one-twentieth of the surrounding snow—is simply the light which comes from the sky. You cannot make it brighter. For sunlight effects something must be sacrificed somewhere; it is a matter of give and take. He saw a sad deterioration in the quality of negatives since the supercession of that most beautiful of all processes—wet collodion—and he sometimes felt inclined to throw away his gelatine negatives and print only from those having a collodion basis. In the days of collodion photographers were not so brutally mechanical as they are now. Development was an absolute art, and the negative could not be left rocking in a dish to develop itself. If a part wanted bringing out you could do it during development, and he would recommend those who wanted real effects to go back to the old process. Dodging a negative, such as is practised now, was unknown in the days of collodion. It was painful to see artistic photography reduced to such expedients. He would go so far as to say that no awards should be given until the judges at an exhibition had examined the negative from which a medalled picture had been printed. With regard to sunlight effects, Nature was far more fairly represented by a good lantern slide, projected on a sheet, than could ever be attained on a paper print. And this was especially the case if the electric light were employed, for that light is the nearest approach to sunlight which we had at command. He would, therefore, advise those who hankered after sunlight effects to prepare their pictures for projection on a screen.

PHOTOGRAPHY IN GERMANY.

BY HERMANN E. GUNTHER.

SULPHUREA AS A FIXING AND CLEARING AGENT FOR NEGATIVES — LIGHT-SENSITIVE COLOURING MATTERS—GELATINO-CHLORIDE EMULSION—SENSITISED POSTCARDS.

THE USE OF SULPHUREA FOR FIXING AND CLEARING NEGATIVES.

IN a recent issue of the *Photograph. Archiv* Dr. A. Bogisch points out that he has tried to use the simple sulphurea (of which it is said that it has the same qualities as its descendant, the thiosinamine, but that it is cheaper) for fixing; but, though it completely answers its purpose as a fixing agent for prints, it will not, in the author's opinion, replace the good old hypo, on account of several difficulties which are encountered in its employment. Firstly, it is very difficult to entirely remove the silver haloid from the paper; in most cases a considerable quantity of it remaining, which is decomposed by ammonia or caustic soda to sulphide of silver. Secondly, the substance has the great inconvenience of softening the gelatine film. Even when only a 5 per cent. solution of sulphurea is employed, a softening of the gelatine will take place if the prints are left in the bath for any time, and to the same extent as if sulphocyanide of ammonium were used. On the other hand, the simple sulphurea may be employed with great advantage for clearing gelatine films which have been stained by the developing solution. If, for instance, a pyro-developed, yellow-stained negative is placed for ten minutes in a solution of

Sulphurea	20 grammes
Citric acid	10 ,,
Water	1,000 cc.

the yellow stain will be completely removed.

No statements are made by the author for what reason he objects to the use of thiosinamine, which seems to be the fixing agent *par excellence*, provided that the price of the substance is sufficiently lowered to bring it into practical use.

Light-sensitive Colouring Matters.

Interesting experiments have been made by Herr R. Ed. Liesegang, in order to increase the sensitiveness to light of various organic colouring matters. Of these, only the following, which will perhaps prove to be of practical value, need be mentioned. The well-known colouring matter, methyl violet 6 B, consisting essentially of the hydrochlorate of pinta-methyl-benzyl-para-rosaniline, is changed by an aqueous solution of ferric oxalate to a green colouring matter, which, if diluted with water, becomes red and shows a green fluorescence. Applied to paper it dries to a bright yellow; and if exposed to light, the paper becomes an intense violet-black. The intensity of this colouration exceeds twice that of paper coated with methyl violet without treating it with ferric oxalate and exposing it to light. A valuable heliographic printing process may be based on this reaction, if fixation be found possible.

Gelatino-chloride Emulsion.

A method of preparing gelatino-chloride emulsion printing-out paper, due to Mr. Kaschkaroff, is mentioned in the *Deutsche Phot. Zeitung*. Sixty grammes of gelatine are dissolved in 500 cc. of water, and a solution of

Sodium chloride	15 grammes
Citric acid	1 gramme
Carbonate of soda	1 ,,

is added to it. If it is desired to obtain softness, from 100 to 200 cc. of a solution of 5 grammes of agar-agar in 500 cc. of water, which are reduced by evaporation to 200 cc. and filtered, should be subsequently added. In order to increase the sensitiveness, an addition of 0·1 gramme of sodium salicylate and 10 cc. of a decoction of Iceland-moss may be made. The sensitising is effected by floating the paper prepared with the gelatine solution on a solution of nitrate of silver of from 10 to 12 per cent., for from two to three minutes.

With regard to the treatment of the ready sensitised gelatino-chloride paper (aristotype paper) of the trade, a practical inprovement has been suggested of late by Herr R. Ed. Liesegang. He recommends to print the paper as usual, and then to place it—without previous washing—in a solution of

Sulphocyanide of aluminium (of 19° Bé.)	20 cc.
Water	100 cc.

The print is left in this bath for about three minutes, until it has become yellow. It is then rinsed twice with clean water and toned in a solution of

Water	2,000 cc.
Chloride of gold	1 gramme

until it shows the required tone if examined by reflected light. The print should then be again rinsed twice with clean water and fixed in hypo. The tone obtained with this bath is a beautiful bluish-black.

Herr Liesegang gives the following scientific explanation of the process. The unexposed chloride of silver is converted by the sulphocyanide into sulphocyanide of silver, which dissolves in the sulphocyanide of aluminium. The image is, however, not yet fixed completely, and during the washing process the silver salt is again deposited in the gelatine film. Aluminium sulphocyanide is preferable to ammonium sulphocyanide on account of its property of hardening the gelatine film to a high degree. The process may be equally well applied to albumen and collodio-chloride paper.

Sensitised Postcards.

A novelty which will be welcomed by many adherents of photography has been introduced by the firm of Chr. Harbers, of Leipzic, in the form of ready-sensitised postcards. They are prepared with silver-chloride emulsion, and are intended to be used for contact printing under a negative. The treatment of the cards in printing, toning, and fixing is the same as that of the common silver-chloride printing-out papers; it is only necessary to print a little deeper and to fix more thoroughly, on account of the card being softer and more porous than other papers with a hard surface. It will, therefore, be well, in using the combined toning and fixing bath, to add to it, before using it again, a supplementary portion of hypo, about from three to five drops of a solution 1 : 3 to each postcard to be treated. Also the washing should be done more thoroughly than usual. After washing, a bath of eau de Javelle should be used, and afterwards the card again washed once or twice in clean water and dried between blotting paper. It will dry in an hour, and can then be written on with ink or lead pencil on the non-exposed parts. Very nice effects may be obtained by using during printing paper masks and discs, which are furnished, together with the postcards, by the manufacturer. Negatives of small size taken with the hand camera will be specially well suited for being printed on these cards.

THE HORSE FROM AN ARTISTIC POINT OF VIEW.

BY M. HORACE HAYES, F.R.C.V.S., LATE CAPTAIN "THE BUFFS."

My object in reading this paper is to direct your attention to truth and beauty in the delineation of the horse, when stationary as well as in movement.

I may explain that some of the facts which I shall bring forward have been discussed to more or less length in a book, "The Points of a Horse," which I have lately published. Their application to art is, however, more or less new.

In writing this for publication I encounter the difficulty of referring to the illustrations which I have the honour of showing on the screen, but which I am unable to reproduce here.

I in no way wish to occupy your time uselessly in going over well-trodden ground in the province of equine locomotion, which was first studied in an exact manner and in great detail by Professor Marey (1873), by means of an instrument similar in principle to the cardiograph. I see, by reference to the *Journal of the Society of Arts*, that, nine years after the appearance of the work of the French savant, Mr. Muybridge delivered a lecture to the

Society, in which he assumed that he was the pioneer of this study, and that, previous to the evening on which he spoke, artists had remained in ignorance of the movements of the horse in its various paces. It is evident that Mr. Muybridge, whose valuable labours with the camera I in no way wish to underrate, knew more about photography than of French scientific literature. This subject has been so well threshed out by him, and more lately by Anschütz, that there remains but little more to learn about it. Colonel Duhousset, who published his book, "Le Cheval," in 1881, gave the results of his investigations on the proportions of the horse, and being an artist himself, and a follower of Professor Marey, redrew the action of horses in motion, which Géricault and other great painters had rendered in a wrong manner.

I am so ignorant of the conventional rules of art, that I put forward, with considerable hesitation, the statement that a picture of a horse should be true to nature, and should satisfy the requirements of the sentiment expressed by the painter. Thus, if he wishes to show that a horse is handsome, he should place him in a handsome pose; if he desires to represent him in movement, he should give him the "feeling" of motion. Horses have been such good friends to me, that I wish to speak only of the manner by which they may be depicted at their best.

It has been the custom of writers on equine conformation, from Bourgelat, who wrote in 1808, to Goubaux and Barrier, the second edition of whose work appeared in 1890, to regard the proportions of the horse as those of a standard animal, the type of which is represented by the ordinary hunter or trooper. If, however, we examine the various breeds of horses both in the United Kingdom and abroad, we shall find that there are two well-marked extremes—namely, the racehorse and the heavy cart horse—and that the "points" of intermediate classes are made up of combinations, in various proportions, of the two. We have at one end of the scale an animal whose chief characteristic is the possession of speed; at the other, one which is distinguished by immense strength. As examples, I may give Ormonde and the champion Shire mare, Chance. As intermediate classes, I may show an English cob and a high-caste Arab. If, as has been pointed out by Professor Marey in his book, "La Machine Animale," we examine the muscles of various animals, we shall find that those of strength are, comparatively speaking, short and thick; those of speed, long and thin. We have, for instance, the short sternum, with its deep keel, of the albatross, and the long one of the homing pigeon; the short, thick legs of the cart-horse, and the long, thin ones of the galloper.

Among the *Felidæ*, also, we have in the tiger an incarnation of strength; in the cheetah and lynx, of speed. As the functions of the body are the same in both classes of the horse, its proportions remain unchanged. Hence, the nearer a horse approaches the thoroughbred the shorter will be his body compared to his height at the withers; and *vice versa.* Thus, Ormonde was about three inches higher than he was long; and Chance, about nine inches longer than she was high. To these facts, which I believe I have been the first to point out, we must add that of the length of the head being proportionate to the length of the body, and not to the height of the withers, which is largely composed of the length of the forelegs. Another fact, which had escaped notice before the appearance of my book, is that the length of the neck is more or less proportionate to that of the limbs, and not to that of the body; for on the length of the neck depends the length of those muscles which draw the fore limb forward, and which, consequently, are muscles of locomotion.

I may briefly run over the following proportions, which are common to all classes of horses:—

Length of body = 2½ to 2⅔ times the length of head.

Height at withers = height at croup.

Length of head = depth of body at lowest part of back.

Distance of top of head to corner of mouth = distance of point of hip to point of buttock.

Width of head = half length of head.

Owing to the head being comparatively far removed from the body, it gives one the impression of being smaller than it really is.

As a rule, English artists greatly exaggerate the length of "quarter," namely, the distance from the point of the hip (anterior iliac spine) to the end of the tuberosity of the ischium. They often make it a full head in length, if not more. The cause, no doubt, of this was the knowledge that length of pelvis is a mark of beauty. Meissonier, who always tried to obtain correctness, steered clear of this fault, and of the equally common one of making the head too small. It is not at all unusual to see a painted or sculptured horse with a head belonging to a horse ten or twelve inches smaller than the one which furnished the body. Landseer, who was also very careful to preserve truth, continued the mistake made by the older artists, of putting the shoulder joint too high up. Such a position implies the existence of the marked defect of the animal having a short scapula. I may here remark, in passing, that, as the muscles which connect the fore limb to the trunk are inserted on the scapula, length of that bone is an indication of weight-carrying power.

The beautiful curves of the front view of the head of a well-bred horse contrast well with the straight lines which bound the face of an underbred animal.

The proportions of the head, like those of the body, do not vary according to class. Thus the width of the head, viewed in profile, is about half its length; and in racehorses, equal to the width of the neck at the angles of the lower jaw. In cart horses, the neck at this part is much thicker. Owing to muscles of locomotion being attached to the scapula and humerus, we have the thick shoulders of the cart horse and the flat ones of the racer. The fatally easy but ignorant method of taking an average horse is well exemplified in the delineation of the legs. As the joints of the fetlock and pastern act as springs to mitigate the evil effects of concussion, we find that in those countries in which the ground is hard and dry, the pasterns of horses reared there are more sloping than in those that are bred and reared on soft soil. We have the representation of a remarkably sound pair of forelegs which belonged to an Arab horse, who, as racing men say, liked to "hear his hoofs rattle." If we examine them still further we shall, besides the extreme obliquity of the pasterns, be struck with the near approach of parallelism between the cannon-bone and back tendons, which is a characteristic of the Eastern horse and English thoroughbred. We see this also well shown. The further we recede from the galloper and approach the cart horse, the greater difference is there between the width just below the knee and that at the fetlock. The two special points of beauty about the hocks are the comparative size of the head of the metatarsal bone and ability to straighten the joint. The only difference between the fore and hind limbs to which I need draw attention is that the pasterns and hoofs, when in a natural state, of the hind extremity are more upright than those of the fore limb.

I need hardly draw attention to the "lighting up" of the horse's appearance by the pricking forward of the ears and the proud carriage of the tail. I may also draw attention to the good effect of a horse being placed against the sky. When a horse is viewed in profile he looks best when his nearer fore foot is more advanced and his nearer hind foot is more drawn back than its fellow. We see this position well shown in the Brahminee bull represented. Here the curves of his horns, hump, and dewlap are very fine. In the next photograph, the position of the horns is slightly changed, and the artistic effect is lost. The effect of the ears is good in the Burchell's zebra. I may mention in passing that this is the only ass which has horse-like ears. In fact his conformation resembles that of the horse much more nearly than that of *equus zebra*, or of any other ass, except the extinct quagga, a photograph of which, by the kindness of that admirable photographer, Mr. Frank Haes, I am able to show you on the screen. I cannot resist showing you a photograph of an Arab pony and lady, as it has some claims to artistic merit.

It has been truly said that the domain of the artist is to depict what he sees. As he cannot see attitudes which do not exist, he is not justified in putting his horse into attitudes which the animal never assumes. As long as we remain ignorant, we may be contented with pictures of moving horses in impossible positions. But when we know that such positions are impossible, the "feeling" of motion is lost to us with respect to such work. Hence the artist who aspires to satisfy the requirements of educated men must depict animals in motion truthfully. Many of the positions of the canter and gallop do not give the feeling of motion, and should consequently be rejected by the artist, who must rely solely on those that are both true and artistic. Never having seen any of the funny positions adopted by horses in the canter or gallop, no amount of knowledge can make them true to us. As cases in point, I give the following photographs. As a galloping horse flashes past us, we find that we are unable to take within our scope of vision his entire body, but we can accurately follow the movements of either his fore or his hind limbs. Hence we get the feeling of motion by shutting off or blurring either pair, as in some of the photographs. Here the straightened fore leg is very effective. Not long ago, Mr. John Charlton told me that the only way to give motion of a horse drawn at the canter or gallop was to have him off the ground. I made no reply, but set to work to obtain a photograph of a horse at the canter with all four feet on the ground, and yet with the feeling of motion. I now beg to submit the result to your judgment. The photograph of the canter appears to me to be effective. I give another with one hind leg on the ground.

(*To be continued.*)

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We have received from Mr. Fallowfield a copy of the *American Annual of Photography and Photographic Times Almanac*, for which he is sole agent in this country. The volume contains much valuable and interesting matter, with many illustrations. The most noteworthy are a coloured frontispiece by the Kurtz process, and two instantaneous pictures of a disastrous balloon ascent, where the balloon was ripped open by the lightning conductor of a tall chimney. The injuries to balloon and lightning rod are plainly apparent in these pictures. As usual, the volume is beautifully printed on good paper, and its price is two shillings.

Combined Toning and Fixing Bath.—Gaedicke states that a carefully washed collodio-chloride print was dusted in one place with pure silver sulphide and in another place with precipitated sulphur, and the whole exposed to the action of air and light. The silver sulphide had no action on the image, while the sulphur ate the image right away. The two ingredients of the combined bath which are hurtful are citric acid and alum; sulphocyanides are not so easily decomposed as hypo. and as they form permanent gold salts they may be used. Lead in a combined bath has merely a physical and not a chemical action; causing rapid precipitation of the chloride of silver, it improves the tones without entering into the image. Gaedicke strongly recommends boric acid and the following particular formula:—

Distilled water	1,000	parts.
Sodium hyposulphite	200	,,
Boric acid	30	,,
Lead nitrate (dissolved in water)	15	,,
Ammonium sulphocyanide	20	,,
Sol. chloride of gold (1 per cent.)	60	,,

Black sulphide of lead is precipitated in twenty-four hours, and the bath is then ready for use. The clear solution is absolutely without smell, and by continued use only innocuous silver sulphide is deposited. When fresh, it tones very quickly, and it is advisable to use some of the bath up and add fresh water to it. It is important that the paper, which is always acid, should be well washed and neutralised; the prints should be freed from soluble silver salts, then placed in 1 per cent. solution of ammonia. Care must be taken in washing several prints that the whole of the ammonia is not neutralised; there should always be a faint smell. Sodium carbonate may be used in moderation for the same purpose; the prints can then be washed twice in water and then toned. The prints should be taken out of the bath while still rather redder than desirable, because they turn colour in drying.—*Photo-Wochenbl.*

CORRESPONDENCE.

MR. H. P. ROBINSON'S "RAMBLING PAPERS."

Sir,—I am at a loss in trying to fathom the motive which actuates Mr. H. P. Robinson in persistently depreciating the work of scientific men in connection with the history and progress of photography. Where should we have been from 1851 to 1878 but for Schönbein's gun-cotton, and Dr. Stenhouse's pyrogallic acid, which Frederick Scott Archer (not William), aided by Dr. Diamond's friendly encouragement, succeeded in utilising when bringing out his splendid discovery of the collodion process? He may have been a sculptor, but it was by a course of chemical experiments that Archer was led on to his successful result.

Mr. H. Fox Talbot is, I note, allowed to be a scientist. So also were, undoubtedly, Wedgwood and Davy (in their joint capacity), Dr. Wollaston, Sir John Herschel, and Mr. J. W. Swan. The Rev. J. B. Reade and Major Russell were both scientific amateurs, and the same must be said for Mr. Charles Bennett, who is to have "the next statue put up" to him. For were not his methods of working truly those of the scientific investigator? They were recognised as such when he was awarded the Progress Medal of the Photographic Society. "Yet who ever now hears of Bennett? Do your readers know whether he is alive or dead?" Well, good men are content to make their mark, and don't expect a statue or to be continually talked about.

Then, again, can it be fairly said of Hardwich that "his authority checked the progress of the art for several years"? On the contrary, I remember that his researches and those of his friend Hadow, at King's College, fixed the kind of gun-cotton to be used in collodion. The gold-toning process, causes of fading, experiments on the constitution of the photographic image, early lantern work, were all entitled to respectful recognition, although he (Hardwich) failed to follow Herschel, Crookes, and Heisch in advocacy of bromine in collodion. Even now we must admit that the sensitisers approved for collodion are not those best suited for gelatine.

But the point of the whole argument is, according to Mr. Robinson, that no good can be expected from anybody who is not an artist. Well, then, I only ask where would the artists have been, as to photography, without the friendly help of the amateur or professional man of science? Lenses, chemicals, and appliances were demanded, and they were forthcoming. We are always glad to be of service to the artists. But, of the list of names quoted by Mr. H. P. Robinson, as being "the originators of photography," how few turn out to have been really artists! He might have instanced Francis Bedford, O. G. Rejlander, John Hubbard, F. C. Earl, Valentine Blanchard, and, I will add, himself, as men of art training and talent, who have done good service as exponents of photography, and therewith have been content. John Spiller.

London, December 1st, 1893.

* * *

We are requested by Messrs. Perken, Son, and Rayment to remind intending competitors for their one hundred guineas' worth of prizes that the entries must close on the last day of December. A circular has been issued by the firm, giving all particulars of the prizes and the rules governing the competition.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

November 30th.—Mr. P. Everitt in the Chair.

Mr. W. T. Wilkinson showed two prints on gelatino-chloride paper, one printed out and the other developed. The latter showed a fuller range of gradation than the former. He also showed prints from two negatives, one on a Sandell and the other on an isochromatic plate, used with a screen. The latter plate showed the clouds more distinctly than the former.

The discussion on the carbon process demonstration of the week before was then taken. Mr. Birt Acres was not present, but Mr. Skelton undertook to reply to questions.

Mr. W. E. Debenham said that Mr. Birt Acres had stated that carbon tissue was of about the same sensitiveness as albumen paper. Was this statement meant to apply to Messrs. Elliott's tissue or generally? If the latter, he thought the beginner would be much misled, as in his experience since he first noted the proportionate speed at the Lamberttype time until now, he found the speed of carbon tissue sensitised with bichromate solution as advised to be from three to four times that of albumen paper.

Mr. Skelton replied that tissue sent out ready sensitised was about as quick printing as albumen paper, but that sensitised in the bichromate bath was much quicker.

Mr. Debenham also noted that Mr. Birt Acres had said that, so long as the tissue was not made insoluble right through to the back, over-printing did not matter, as, however dark a print was made, it might be reduced and made all right by continuing the development with hot water. He had found that, when moderately over-printed, the print might be thus lightened, but that if it was, say, twice too much printed, even if it could be reduced, the quality of the print was not the same, and gradations in the lights suffered: and, if very much over-printed, he could not depend upon reducing it without wrinkling or loosening of the carbon film.

Mr. Skelton said that the print ought to be made as nearly as possible of the right depth, as the quality was certainly altered by continuing the development.

Mr. J. S. Teape inquired whether Mr. Skelton had used alcohol in the sensitising bath.

Mr. Skelton replied that he had done so long ago, but not recently. Ice was used when necessary instead.

Mr. Hodd asked whether it mattered that the time of immersion in a sensitising bath was long or short.

Mr. Skelton said that long soaking made the tissue more sensitive.

The Chairman said that at the meeting a fortnight before, when he had asked for a remedy for lack of vigour in a carbon print, Mr. Debenham had recommended the use of a weaker sensitising bath, and of engraving black tissue. He now produced a print from the same negative as that which had yielded such a feeble result. The print now shown was made on the Autotype Company's engraving black tissue, sensitised on a 1 per cent. bath, and was as vigorous as he could wish. As illustrating the speed of printing, he mentioned that the press was filled overnight and put at a window, from which it was taken in at twenty minutes past nine, the light up to that time being by no means strong at this time of year.

ASHTON-UNDER-LYNE PHOTOGRAPHIC SOCIETY.

Winter Session, 1893-4.

Friday, December 8.—The Secretary will be at the rooms from 8 to 10, for the purpose of trying members' slides intended for the competition.
Thursday, „ 14.—This is the last day for receiving slides for the Society's competition.
„ „ 14.—Demonstration and lecture on "The Chemistry of Photography," by Mr. S. Sharp. Chairman, Mr. James Grierson.
Wednesday, „ 20.—Exhibition of lantern slides, and the awards given in the Society's competition. Chairman, Dr. Hamilton.

WEST LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, November 28th.

Mr. T. R. Dallmeyer delivered a lecture on Tele-photography.

After stating the importance of understanding the meaning of "nodal" points and planes as a preliminary to a proper study of the subject, and having explained by diagrams the use and signification of them, the lecturer mentioned that, whereas the ordinary doublet lens had its nodal point or points within the space included between the two symmetrical elements of the lens, the tele-photographic lens, consisting as it did of a positive and negative combination, had its nodal point in space outside and removed some distance in front of the lens.

It was this fact which enabled the lens to be used in a camera of moderate extension. The usefulness of a telephotographic lens depended upon the fact that the direct image was superior to an enlargement, which too often showed the grain of the silver deposit.

The points of importance were :—

1. The focus of a positive system of lenses.
2. The position of the nodal points and planes in the same.
3. The positions of the nodal points and planes in a combined system.
4. The positions for a particular position of object.
5. The intensity of the system for that position.
6. The formulæ by which to determine the above.

The lecturer described various methods of determining the focus of a positive system of lenses, and commended as of sufficient accuracy for general purposes the method of dividing by four the distance between image and object when the two are of equal size. It was quite as accurate as Grubb's method, with an ordinary doublet lens.

A new and very exact method was to focus an object of known size at a given distance : to measure the size of image, to move the object further away, re-focus, and repeat the measurement of image, and to measure the distance between the two positions. From these data the focus of the lens could be calculated by a simple formula. The same method applied to a lens having a negative element. The image of the positive lens in this instance takes the place of the object.

To determine the magnification of a tele-photoscopic lens, divide the back focus by the focus of the negative element, and add one. Intensity depends on magnification.

Referring to the useful qualities of these lenses, the lecturer said that they gave a selective power, since different sizes of plate could be covered according to the distance of plate from lens. In rapid work he did not recommend a ratio of more than one-half between focus of negative and of positive elements.

Any lens could be converted into a tele-photoscopic lens.

It was important to avoid tremor with lenses of this make, the effects being much magnified in the resulting image. The lecturer showed diagrams of special cameras with finders for rapid work, and concluded a most thorough and interesting paper by showing a series of lantern slides on the screen, in which the magnification of the tele-photographic lens was made conspicuous by comparison with photos of the same subject taken with an ordinary lens.

In the discussion which followed, Messrs. Debenham, Tripplin, Stein, Winter, and Hodges spoke.

THE PHOTOGRAPHERS' BENEVOLENT ASSOCIATION.

Meeting of the Committee, November 30th, in the Rooms of the Photographic Society of Great Britain.—Mr. A. Mackie in the Chair.

First application was from an assistant out of employment, who asked for £3 as a loan for temporary relief. Satisfactory testimonials had been received, but as he had been nine months out of employment the Committee thought there was little prospect of the grant asked for being a permanent relief. An immediate grant of 10s. was made, and the Secretary instructed to ask for further particulars.

Second application was from a member of the Association, an assistant, who asked for £30 to enable him to start in business for himself. The Committee decided that this was not a form of loan that they could grant.

The Secretary reported that three of the applicants who had been helped during the summer had commenced to repay the loans by small instalments ; and that another, to whom a camera was supplied a month ago, had reported that he was succeeding very well, and, on receipt of payment for work which would be finished shortly, he hoped to repay the whole loan of between £4 and £5.

Messrs. M. Howell, H. L. Morel, Geo. Carter, and Roland C. Whiting were accepted as subscribers.

Donations were acknowledged from Messrs. Marion & Co , £3 3s.; George Mansfield, £2 2s ; Captain Abney, £1 ; Mawson & Swan, £1 1s. : Jonathan Fallowfield, £1 1s ; Watson & Sons, £1 1s. ; Geo. Nelson, Dale, & Co., £1 1s. ; F. W. Verel & Co., 10s. 6d. ; Richard Keene, 10s. ; H. G. Yatman, 10s.

THE A.A. CAMERA CLUB.

A photographic society has been started in connection with the Architectural Association under the above title. The earnestness with which the new venture has been taken up promises well for a useful and successful career.

The object of the Club is to promote the cultivation and advancement of architectural photography. To attain this end the following methods will be adopted—viz.,

(*a*) Visits to buildings of architectural interest.
(*b*) Exhibitions and demonstrations.
(*c*) Reading and discussion of papers.
(*d*) Collection of architectural photographs and lantern slides.

The subscription is five shillings per session, and membership is limited to members of the Architectural Association.

The following meetings, which will be held at 56, Great Marlborough Street, are already arranged for—viz. :—

December 13th, 1893, Lecture, "With the Camera in Belgium and Brittany," by G. A. T. Middleton, A.R.I.B.A.

January 17th, 1894, exhibition of members' lantern slides.

February 14th, Address on Architectural Photography, by J. L. Robinson, R.H.A.

March 14th, Lecture, "My Travels in Greece and Cyprus with a Camera," by R. Elsey Smith, A.R.I.B.A.

April 18th, Paper, "The Hand Camera and Architectural Photography," by Walter D. Welford, editor of the *Photographic Review of Reviews*.

The chair will be taken each evening at 8 p.m. precisely.

The President of the Club is Mr. J. L. Robinson, R.H.A. and the members of committee are Messrs. J. P. Clark, A. J. Roddis, E. G. Simpson, and E. W. M. Wonnacott, with Mr. Francis R. Taylor as Hon. Sec.

Derby Photographic Society.

The usual monthly meeting of the above Society was held on the 28th ult., Mr. R. Keene presiding.

The election of officers resulted as follows:—President, Captain W. de W. Abney, R.E., C.B., F.R.S.; vice-president, Mr. R. Keene; committee, Messrs. A. H. Bennett, C. Bourdin, C. B. Keene, T. Scotton, G. Walker, R. Woods; treasurer, Mr. A. B. Hamilton; hon. secretary, Mr. T. A. Scotton, 9, Church Street, Derby.

Mr. A. H. Fry, of London, gave a lecture and demonstration on "Lantern Slide Making." Mr. Fry very clearly explained the various methods of doing this, such as printing in contact with gaslight, printing out by daylight, partially printing out by daylight, and then converting the chloride of silver salts into bromide of silver and developing to the proper density by the ordinary methods, afterwards toning with gold in the usual way, and lastly by means of reduction in the camera. The demonstration throughout was excellent, and was watched with great interest by the large number of members present, and at its conclusion a general discussion took place.

A very cordial vote of thanks to Mr. Fry, and also to the chairman, was passed, this terminating the meeting.

Birmingham Photographic Society.

Ordinary Meeting, November 28th.—Mr. J. J. Button in the Chair.—About twenty-five members present.

Mr. Underwood gave a demonstration on the working of gelatino-chloride papers, carrying out all the manipulations before the meeting from the time the print is taken from the frame till it is in position with a matt surface upon its mount. The demonstration, which included toning with platinum, as well as the various gold baths, was followed with great interest by the audience.

Liverpool Amateur Photographic Association.

Mr. William Tomkinson presided at the monthly meeting, held in the Club Rooms, on 30th November. There was a large attendance of members.

A lantern lecture was given by Mr. W. P. Christian on "Quiet Corners in France and Italy," in the course of which photographic views, taken by the lecturer, of famous old towns and villages situated near the Italian Riviera, Venice, and the Italian lakes, were thrown on the screen with the most pleasing results. A sample "Thornton-Pickard Automatic Camera Stand" was exhibited to the members at this meeting.

ANSWERS TO CORRESPONDENTS.

*** *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Plympton.—The best way of obtaining a brilliant lantern slide from a very thin negative is to use a chloride plate. The plan is only applicable where the negative is of suitable size for contact printing. You can, of course, obtain the same result from wet collodion by subsequent intensification, but we presume from what you tell us that you have not meddled with collodion.

M.—The metol should be dissolved in water before adding the sulphite. Why do you not get the exact proportions from your dealer?

N. O.—It is entirely a question of the amount of light available. One would not choose a lens of the type named for hand-camera purposes; but, provided that you are at work in the open country—or, still better, on the sea—it will take an excellent picture in bright light. The same lens would be useless for such work in a London street.

Photos.—The workmanship of the apparatus sent is of the roughest and most faulty description, and the design is very antiquated. It would be dear at any price.

M. K.—(1) There are numerous published methods of sensitising fabrics, which you will find in the text-books and scattered throughout the pages of photo periodicals and year-books. (2) We believe that the Platinotype Company intend bringing out some fabrics so sensitised. Specimens of their process have already been seen at the Salon and elsewhere.

Fanny.—A speed of $\frac{1}{120}$th of a second would be more than sufficient for the object named. A carriage travelling at ten miles an hour would only move forward one inch in that time, and this would be of no consequence, especially if the vehicle were moving towards or away from the lens.

Nikko.—Abrasions in the film or on the varnish show up painfully when enlarging by artificial light. Use a ground or opal glass between condenser and negative, and the difficulty will at once cease.

C. C.—Hopkins & Williams, Hatton Garden.

Modus.—For emulsion work, experimental or otherwise, nothing but distilled water should be employed; and, unless you are quite sure of your dealer, distil it for yourself. This is such an easy matter, and there is so much satisfaction in knowing that no impurity is possible from that source, that you would be wise to do so. Of course, the distilled water supplied by any wholesale chemist is reliable; but we have more than once bought samples from retail men which left much to be desired.

Pachyderm.—Your skin, whatever be its thickness, is evidently very sensitive to bichromate poisoning. If you cannot do your work with indiarubber finger stalls, you would do well to choose some other occupation than carbon printing.

J. J.—We have no confidence whatever in the person mentioned, and should advise you to reject his overtures.

G. S.—An article on the subject will appear in the forthcoming Year Book, which will be ready next week.

Lens.—We have answered your communication by post.

F. H.—Please send your address, and we will forward it on to you.

The Photographic News
A Weekly Record of the Progress of Photography

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1841. DECEMBER 15, 1893.

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NOTES.

The Year-Book of Photography for 1894—the thirty-fifth year of issue—is now ready, and can be supplied direct from our publishing office, or through any bookseller.

The current number of our French contemporary, the *Paris Photographe*, contains, as a frontispiece, a very fine photogravure, the original of which was taken from the car of a balloon by M. Nadar. The negative was taken as long ago as 1886, and gives a partial view of Belleme (Orne), from an altitude of eleven hundred metres. This is one of the best pictures of the kind which have yet been published, and has the merit of full exposure. Most balloon pictures are under-exposed, and are spoilt by the veil of atmosphere between car and earth. One reason for this is that in this country, at least, balloon ascents take place very late in the afternoon.

It is a pity that when inventors and dealers are bringing out any novelty they do not take care to employ a name for the bantling which has not been used for something else. The Eastman Company took this sensible precaution, and are rewarded by finding the word "kodak" grafted upon the English language. It is not only a noun, but is frequently used as a verb, the newspaper scribe often using the expression, "I kodaked it."

An instance of the confusion arising from careless nomenclature is found in an apparatus which is being advertised in France as the photochromoscope. This title certainly belongs to the clever piece of apparatus invented by Mr. Ives. The Parisian novelty is of quite another character, and reminds us of the contrivance some time ago described in these columns, by which an ordinary photograph rendered transparent can be invested with transient tints by the employment of coloured glasses, paper, and reflectors.

Mr. Kenneth T. Murray has done good service in publishing an excellent handbook on the "Use of Compressed Oxygen." As engineer to Brin's Oxygen Company he is in the best position to know all about the subject of which he writes. Unfortunately, the book was at press when the recent Bradford explosion occurred, and the author has found it necessary to write a little appendix to one of his chapters, which we shall refer to on a future occasion. In this pamphlet Mr. Murray attributes the accident to the burst cylinder having inadvertently escaped the very necessary annealing process. His opinion will certainly tend to restore confidence in the soundness of the compressed gas system.

Those interested in, or engaged in, photographic process work would do well to obtain a copy of the recently issued catalogue and price list of Romain Talbot, of Berlin. It is an illustrated account of the various presses and tools used in photogravure, metal etching, and collotype.

Among the unsatisfactory processes for obtaining line drawings from photographs is one which has a knack of cropping up again and again in various publications. Briefly put, it consists in going over the lines of a photographic print with a pen and India ink—filling in the shadows with either lines or dots. The photo is then bleached out of sight, and the drawing is left, "a joy for ever" possibly to the producer, but generally not a thing of beauty. The whole process sounds so easy that probably many have been induced to try it only to find out that it is by no means an easy thing to express shadows by lines and dots. That work, indeed, requires the skill of an artist.

The experience of travellers in photographing savages makes a very entertaining chapter in the history of photography. The latest episode is related by Mr. Theodore Bent in his recently-published volume, "The Sacred City of the Ethiopians." Both Mr. Bent and his wife are skilful photographers, and they have made ample use of the art in Abyssinia and in Mashonaland. When the travellers were at Aksum, in Abyssinia, they received visits from the officers of the Abyssinian army, among whom was a General Meshsasha, who wished to have his photograph taken. The General was very vain, and arrayed himself in all the panoply of war, putting on the grand robes in which he went to battle, and wearing his lion's mane round his forehead. He was also accompanied by his shield-bearer, his lance-bearer, and his horse, splendidly caparisoned. He was photographed in four or five positions, and then insisted upon seeing the results. When he was informed that the photographs had to undergo various processes before they could be submitted for inspection, he flew into a violent passion, and treated the photographer to a bad quarter of an hour in the way of vigorous language.

Mr. A. H. Savage Landor had an even worse experience. He tells us in his book, "Alone with the Hairy Ainu," a record of travels in Japan, how, having sketched a group of natives who had caught a large fish, the sitters seized and destroyed the picture, and hustled the artist, who complained to the police. When asked by the authorities why they had assaulted the artist, one of them said: "If once you have your likeness taken, you have to give up your life to it, and it brings illness to your children, your parents, and your neighbours." But the most serious part of the picture was the painting, or rather the "making" —for the Ainu have no word for painting—of the fish. Said the man: "Had we not destroyed his *makings*, all the fish would have disappeared from the sea, and the Ainu would have died from starvation." Having destroyed the picture they thought they were safe, and could hardly believe their eyes when Mr. Savage Landor produced a sketch of the scene which he had repainted from memory. This, as he puts it, "beat them," and they humbly apologised. If a painting, the progress of which they could watch, produced this effect on the Ainu, what would have been the consequences of a photograph?

It is curious that painters generally do not follow the example of M. Emile Wauters, now acknowledged to be the first of Belgian artists. M. Wauters has every picture he has painted, even in his early days, photographed, and they are to be seen in huge red albums in the *salon* of his house in the Rue Ampère, Paris. M. Wauters, who made his mark with historical pictures, and notably with "The Madness of Hugo Van der Goes," which created a *furore* in the Continental artistic world, has, like many another artist, turned his attention to portraiture, and though he believes in photographic copies of his pictures, he will have nothing to do with photographs in the painting of a portrait. On one occasion, when asked to do so, he refused.

The importation of jewellers' sweepings and photographers' waste into Canada, has been causing some anxiety to the Canadian Government. In the first place, it did not know whether the stuff was valuable, and in the second, if valuable, what was the duty to be placed upon it. As the *Canadian Manufacturer* points out, the articles have no value whatever until refined, and the precious metals thus recovered; "but it has taken many months of serious consideration on the part of the Government to convince it of the propriety of issuing an Order in Council to this effect." But, we are tempted to ask, Why should photographers' waste be exported to Canada, and where does it come from?

M. Fourtier, in *La Nature*, suggests an application of tele-photography to architectural study, the utility of which will be at once apparent. The delicate ornamentation, the quaint and grotesque figures, to be seen on the outside of ancient cathedrals and churches, are often practically out of the reach of the student, and cannot be reproduced because of their height. M. Fourtier points out that in such cases adequate photographs could be obtained with the tele-photographic lens, and it is clear that the plan is quite practicable. It may be objected that when the camera has to be inclined at a considerable angle the picture obtained would show considerable distortion; but it is by no means certain this would be the case, for the architects of old fashioned their figures with the express object of being seen from the ground in true proportion. Some years ago, when the front of one of the English cathedrals was being restored, advantage was taken of the scaffolding to photograph the figures forming a portion of the decorations. The result was very curious. All the limbs which were in a perpendicular direction were enormously elongated, and this was especially the case when the figures were in a sitting position, the legs up to the knees being greatly out of drawing in relation to the thighs, which were, of course, horizontal. The photographs, in fact, showed the figures to be ludicrously distorted, yet seen from the ground everything fell right.

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THE HORSE FROM AN ARTISTIC POINT OF VIEW.

BY M. HORACE HAYES, F.R.C.V.S., LATE CAPTAIN "THE

(*Concluded from page 781.*)

IN the action of the leap we have (1) the raising of the fore hand by the extension of the fore limb; (2) propulsion obtained by the straightening out of the hind limbs; (3) "landing" with the four limbs, from the elbow to the hoof, straight; and (4) "getting away" from the fence in the four time of the gallop. If, for instance, the near fore is the first to touch the ground, the sequence will be: near fore, off fore, near hind, off hind; near fore, and so on. This is the four time of the fast gallop. The distinction between the gallop and canter, which I believe I have been the first to point out, is that in the latter pace the second hind foot to come down on the ground is preceded by the opposite fore foot at a very short interval, or is accompanied by it, so as to make the classical canter of three time. The canter, therefore, is a pace in which the stride of the horse is short. If he gradually lengthen it, he will insensibly change the canter into the gallop. I will show presently four photographs of the leap, two of which I took at Sandown Park Steeplechases, and the other two at the Dublin Horse Show of last year, by the kind permission of the Committee of the Royal Dublin Society.

The following is a short description of the lantern slides exhibited:—

1. Ormonde. This horse is actually higher at the withers than he is long in the body; notice also, how low down the point of his shoulder is, and the length of his neck, and that he has no exaggerated quarter.

2. This is a champion Shire mare who has taken several prizes; she is not so high at the withers as she is long. One great peculiarity about the cart horse is the short neck. The length of the neck should be proportionate to the length, not of the body, but of the legs. If a horse looks to have a good place for the collar to fit, he is not fit to ride; he is made for harness. The late John Leech made all his horses with lumpy shoulders. A riding horse, especially a jumper, should have fine shoulders.

3. A horse immediately between the two extremes, a handsome Arab. The neck is not so long as Ormonde's, but much longer than the cart horse. The head is about the depth of the body. In all these horses the proportions of the body remain pretty constant, though the legs vary and the head is proportionate to the length of the body, not to the height.

4. A cob, coming nearer to the cart horse type. It is a bad cob, his neck is short, more like a cart horse, but his legs are longer.

5. Another cob, showing the proper position of the legs to get an artistic picture.

6. An Irish hunter, nearly thoroughbred, extremely good. Notice the beautiful setting on of the forearm with the cannon bone, and the beautiful slope of shoulder. Mares are slighter as a rule across the loins and the back ribs than horses.

7. A tigress, to show strength as contrasted with speed; short powerful legs.

8. A cheetah: notice the great length of the limbs, both hind and fore, showing great speed.

9. A lynx: showing the same characteristics.

10. The first glance at this horse's head shows him to be underbred: all the lines are straight.

11. The head of a thoroughbred, showing beautifully modelled curves. A line drawn across the eyes, and from each eye to the top of the occipital crest, makes an equilateral triangle.

12. The cart mare again, with her ears put back, showing the different impression it produces.

13. A horse with a bumpy forehead, a certain sign of a fault in temper, probably because he has more brains. Horses never do tricks for the love of admiration, like dogs.

14. A horse with a very high occipital crest. They are generally flat, but a high crest is a beauty, as it shows a good development of the muscles which draw the fore limb to the front.

15. A horse's head to show the eye. Many artists make mistakes in the eye: some draw horses to birds' eyes, some to human eyes; but the horse has an eye of his own.

16. A horse with beautiful sloping shoulders and a beautiful neck.

17. The legs of an Arab racehorse. An Englishman would say his pasterns were too sloping; but in a hot climate, where the ground is so hard, this is an advantage. Arabs have usually more sloping pasterns than English horses. Also notice the parallelism between the back tendons and the cannon bone.

18. The legs of another well-bred horse, in which the setting-on of the forearm is very good.

19. An underbred horse, but with beautiful legs.

20. A racehorse, whose pasterns are getting a little too straight; he would not be able to gallop on hard ground. A common fault in horse pictures is to make the fetlocks round, which is a sign of overwork; they should be flat.

21. A saddle horse, with the legs of a cart horse, much thicker at the fetlock than below the knee.

22. A very bad hind leg; tied in below the hock. There are greater indications of ignorance in drawing the hock than in almost any other point, especially the tendency to portray curbs. They should come straight down from the point of the hock.

23. A sickle-hocked horse; with such a shape the hind leg cannot be sufficiently straightened.

24. A beautiful hock. The whole limb comes down like a wedge of great beauty.

25. This, if possible, is still better: a straight-dropped hind leg and immense width of bone just below the hock, and beautiful gaskins.

26. An Australian steeplechaser, a very beautiful horse. Australian horses, taken all round, are better than we have in England, probably owing to the dry climate, which is more congenial to them.

27. A statue by a very famous sculptor. The head is too small, not being more than a third of the length, if so much, and the shoulder joint is set too high.

28. A statue in Calcutta of Lord Mayo. A horse never has a tail like that, and he is represented in moving in what the French call *passage*, a kind of gait in which the horse dances alternately from one diagonal to the other. Lord Mayo would never have ridden a horse that danced about like that.

29. A thoroughbred English racing pony, which looks full of life. A horse to look like that must always be in a large open space; then he is on the alert and looking about him.

30. A Brahmin bull, showing the position in which quadrupeds all look well. The curves of his horns harmonise with the lines of his body and his dewlap.

31. The same animal in a different position. The curves of the horns do not harmonise.

32. Burchell's zebra, showing that he is more like a horse than an ass; as shown by the size of his head, his ears, and his fore legs. Artists should remember that this zebra closely resembles a horse.

33. The mountain zebra, which is an ass. He has a big head and long ears; he is black and white; the other one is brown and yellow. Notice the rudimentary dewlap.

34. Another photograph of the same. This animal will soon be extinct, while Burchell's zebra still exists in large herds.

35. The quagga, now quite extinct. This is a photograph taken many years ago by Mr. Frank Haes by the wet collodion process.

36. A nice-looking horse, with a lady rider.

37 to 47. All these are photographs of horses in motion, illustrating the points above mentioned.

We should bear in mind that, for the sake of stability, the fore leg in "landing" over a jump should have its direction made (in drawing) to pass through the centre of gravity.

As an interesting point of atavism, I beg to bring to your notice a photograph which I lately took of a horse with the second digit almost as perfect as that of the *Hipparion gracile.*

DISCUSSION.

The Chairman, in inviting discussion, said he believed Mr. Muybridge was the first man to bring forward the real position which horses took in motion, as shown in these photographs. Marey was, no doubt, studying the anatomy of the horse, and of the feet and legs especially; but the credit of actually showing the positions in galloping and trotting was due to Muybridge. He was surprised to see in some of these views how they were getting nearer and nearer to some of the old Japanese paintings. It was something quite new for a member of the College of Veterinary Surgeons to take up this subject from an artistic point of view, and they were much indebted to Captain Hayes.

Mr. John Leighton remarked that in a photograph the nose being in advance of the rest of the horse would be slightly enlarged. The old horses of Lebrun and Rubens all had birds' eyes; but it was then the fashion for historical pictures to be incorrect. The ears of a mare were very different from those of a horse, so much so that a rider could tell the sex of the animal directly he got in the saddle. All the horses shown were in profile, none in a front view, so that you did not see the head, which was very important. He should like to know if Captain Hayes could throw any light on the question of rat-tailed horses. Meissonier discovered the action of a horse by making an erection of boards, against which he got horses to trot, canter, or amble, and marked each hoof a different colour, so that he could note and sketch them as they passed, he lying flat on the ground for the purpose. In the Elgin Marbles there were beautiful representations of horses in motion. He should like to know something about the tails of the Burchell zebra and the other species, if they were similar or not.

Mr. Mallett said it was very remarkable what a tendency there was amongst artists to diminish the size of the head in a horse. There was a picture in the National Gallery, for which £23 000 was paid a few years ago, representing King Charles on a grey horse, in which the head was not more than half the length it ought to be, and there was in the South Kensington Museum an elaborate tomb having a number of panels filled with horses, in which the same fault was noticeable.

Mr. Frank Haes said he had never had the opportunity of taking photographs of horses in rapid motion, as all his work was done thirty years ago with wet collodion, but he had noticed horses a great deal, and could bear out a great many of the statements made as to their proportions. Mr. Muybridge referred all the imperfections in equestrian portraits to the statue of Marcus Aurelius in Rome, which was the commencement of all the badly sculptured horses in the world.

Captain Hayes, in reply, said he could not establish Professor Marey's reputation as being the pioneer in all this work, as he had not his book "La Machine Animale" with him, but it was published in 1873, and was translated into English, and he could only refer those interested to it. It would be found there that horses were depicted correctly from deductions made by the instrument used by Professor Marey. Mr. Muybridge said in his lecture that until he showed his photographs artists knew nothing about the movements of the horse, which was not correct, because Professor Marey explained the whole movements absolutely correctly; the only claim to originality which could be sustained on the part of Mr. Muybridge was that he was the first to do the photographic part. Naturally he had taken his photographs in profile, because he did not want to make photography usurp the place of art, and if he had shown pictures foreshortened in any way, he would have been told that photographic perspective was always wrong. He had often tried to find out whether an animal was a horse or a mare by its head alone, and had often heard it said, "Oh, that horse has a mare's head, I don't like it," and he had asked experienced men scores of times and never found that they could tell the sex by the head. He did not doubt there was a difference, but he could not find out what it was. If you said you could tell by the peculiar look, that was not enough for exact statement. With regard to rat tails, his opinion was, that a better-bred horse was in an advanced stage of evolution, and the vertebræ of the tail were smaller than in an unbred horse, and, consequently, the hair was finer and not so bushy, and you found a short dock. In the Arab and East Indian horse, you have always looked for breed in the short dock, which showed the horse had attained a high state of evolution. He was sorry he had left out all about the muzzle of the horse, but he might say that half the horses exhibited in the Royal Academy had congestion of the lungs; they had their nostrils wide open, which a horse never had unless he were breathing very rapidly or was distressed. The nostrils were very dilatable, but, when the horse was standing still, they fell in at once. The tail of the zebra was a very interesting point. The mountain zebra had a tufted tail, like a cow's or a donkey's, but Burchell's zebra had a tail more like that of a horse, the hair continuing up, more or less, the whole way.

The Chairman then moved a hearty vote of thanks to Captain Hayes, which was carried unanimously.—*Society of Arts Journal.*

THE ART OF BEING PHOTOGRAPHED.

A DISSERTATION OVER AN ALBUM.

"AN album," said my uncle, as he sat and turned over my collection of physiognomy, "is, I always think, the best reading in the world. You get such sidelights on the owner's heredity, George; distant cousins caricature his features and point the moral of his nose, and ancestral faces prophesy his fate. His friends, moreover, figure the secret of his soul. But what a lot we have to learn yet in the art of being photographed; what grotesque and awkward blunders your common sitters make! Why, for instance, do men brush their hair so excessively when they go before the lens? Your cousin here looks like a cheap chess pawn about the head, whereas as I know him his head is a thing like a worn-out paint-brush. Where but in a photograph would you see a parting so straight as this? It is unnatural. You flatten down all a man's character; for nothing shows that more than the feathers and drakes' tails, the artful artlessness, or revolutionary tumult of his hair. Mind you, I am not one of those who would prohibit a man wearing what he conceives to be his best clothes to the photographer's. I like to see the little vanity peeping out—the last moment's folly of a foolish tie, nailed up for a lifetime. Yet all the same, people should understand that the camera takes no note of newness, but much of the cut and fit. And a man should certainly not go and alter his outline into a feminine softness, by pouring oil on his troubled mane and plastering it down with a brush and comb. It is not tidiness, but hypocrisy.

"We have indeed very much to learn in this matter. It is a thing that needs teaching, like deportment or dancing. Plenty of men I have noticed, who would never do it in real life, commit the sin of being over-gentlemanly in an album. Their clothes are even indecently immaculate. They become, not portraits, but fashion plates. I hate a man who is not rumpled and creased a little as much as I do a brand-new pipe. And, as a sad example of sin on the other hand, on the side of carelessness, I have seen renderings of a very august personage indeed, in a hat—a *hat!* It was tilted, and to add to the atrocity, he was holding a cigar. This I regard as horrible. Think! Your photograph may go into boudoirs. Imagine Gladys opening the album to Ænone: 'Now I will show you *him*.' And there you sit, leering at their radiant sweetness, hat on, and a cigar reeking between your fingers.

"No, George, a man should go very softly to a photographer's, and he should sit before the camera with reverence in his heart and in his attitude, as if he were in the presence of the woman he loved.

"I often think we do not take this business of photography in a sufficiently serious spirit. Issuing a photograph is like marriage: you can only undo the mischief with infinite woe. I know of one man who has an error of youth of this kind on his mind—a fancy-dress costume affair, Crusader or Templar—of which he is more ashamed than many men would be of the meanest sins. For sometimes the camera has its mordant moods, and amazes you by its saturnine estimate of your merits. This man was perhaps a little out of harmony with the garments of chivalry, and a trifle complacent and vain at the time. But the photograph of him is so cynical and contemptuous, so merciless in its exposure of his element of foolishness, that we may almost fancy the spook of Carlyle had got mixed up with the chemicals upon the film. Yet it never really dawned upon him until he had distributed this advertisement of his little weakness far and wide that the camera had called him a fool to his face. I believe he would be glad now to buy them all back at five pounds a copy.

"This of Minnie Hobson is a work of art. Bless me, the girl must be thirty-seven or thirty-eight now, and just look at her! These photographers have got a trick now, if your face is one of the long kind, of raising the camera, bending your head forward, and firing down at you. So our Minnie becomes quite chubby again. Then, this thing has been retouched." My uncle peered into the photograph. "It seems to me it is pretty nearly all retouching. For instance, if you look at the eye, that high light is not perfectly even; that was touched in on the negative with a pencil. Then about the neck of our Minnie I have observed certain bones, just the slightest indication of her collar-bone, George, but that has disappeared under the retoucher's pencil. Then the infantile smoothness of her cheek, and the beatifully-rounded outline, is produced by the retoucher carefully scraping off the surface of the film where her cheekbone projected with a sharp knife. There are also in real life little lines between the corner of our Minnie's mouth and her nostril. And again, Minnie is one of those people whose dresses never seem to fit, but this fits like a glove. These retouchers are like Midas, and they turn all that comes to their hands to gold; or, like spring, the flowers come up at their approach. They reverse the work of Ithuriel, and restore brightness to the fallen. They sit at their little desks, and scratch, scratch, scratch with those delicate pencils of theirs, scratching away age, scratching away care, making the crooked straight, and the rough smooth. They are the fairies of photography, and fill our albums with winsome changelings. Their ministry anticipates in a little way the angels who will take us when we die, releasing us from the worn and haggard body of this death, and showing something of the eternal life and youth that glows within. Or one might say that the spirit of the retoucher is the spirit of Love. It makes plain women beautiful, and common men heroic. Her regal fingers touch for the evil of ungainliness, and, behold, we are restored. Her pencil is like the Queen's sword, and it makes knights out of common men.

"When I have my photograph taken," said my uncle, "I always like to think of the retoucher. I idealise her; I fancy her with the sweetest eyes I have ever seen, and an expression infinitely soft and tender. And she looks closely into my face, and her little pencil goes gently and lovingly over my features. Tickle, tickle. In that way, George, I get a really very nice expression indeed." My uncle turned to his own presentment, and mused pleasantly for a space.

"I like this newer way of taking your photograph, against a mere grey background; just the head of you. One should always beware of the property furniture of he photographer. In the seventies they were great at such aids—a pedestal, a cork rustic stile, wide landscape in the distance, but I think that we are at least getting beyond that now. People in those days must have been afraid to be left alone before a camera, or they wanted it to seem that they were taken unawares, quite against their modesty—did not know what the camera was, and were just looking at it. A very favourite pose for girls was a graceful droop over a sofa, chin on elegant hand. When I was at Casterbridge—I was a bright young fellow then—I collected a number of local photographs, ladies chiefly, and the thing was very noticeable when I put them in a row over my mantelshelf. The local 'artist' was intensely fond of that pose. But fancy the local leader finding her cook drooping over the same sofa as herself! Nowadays, I see, you get merely the heads of your girls, with their hair flossed up, intense light from above, and faces in shadow. I think it is infinitely better.

"What horrible things hands become in a photograph! I wonder how it is that the hand in a photograph is always four shades darker than the arm. Every girl who goes to be photographed in evening dress should be solemnly warned to keep her hands out of the picture. They will look as though she has been enamelling the grate, or toying with a bucket of pitch. There is something that sins against my conception of womanly purity in those dark hands."

My uncle shut the album. "Yes, it is a neglected field of education, an important branch of deportment altogether forgotten. Our well-bred ease fails us before the camera; we are lucky if we merely look stiff and self-conscious. I should fancy there would be an opening for some clever woman to teach people how to dress for the occasion and how to sit, what to avoid and how to avoid it. As it is we go in a state of nervous agitation obsequiously costumed; our last vestige of self-assertion vanishes before the unwinking Cyclops eye of the instrument, and we cower at the mercy of the thing and its attendant. They make what they will of us, and the retoucher simply edits the review with an eye to the market. So history is falsified before our faces, and we prepare a lie for our grandchildren. We fail to stamp our individualities upon our photographs, and are mere 'dumb-driven cattle' in the matter. We sin against ourselves in this neglect, and act against the spirit of the age. Sooner or later this haphazard treatment of posterity must come to an end."—*Pall Mall Gazette.*

THE SPEED OF PLATES: A CRITICISM AND A REPLY.*

BY H. M. ELDER, M.A.

(*Continued from page 775.*)

HOW does Turner gain the effect of glorious glowing sunshine in his pictures? Not by the intrinsic luminosity of his colours, but by his skill in contrasting them. The mind is susceptible to the effect of contrast, and has been trained to appreciate it and translate it, till the mental effect is identical, or at least of the same order, with the mental effect of the light and shade of the scene itself. How does the photographer obtain this effect? By making his prints slightly harder than they would be if they were in an exactly proportional scale; by intentionally, though perhaps unconsciously, exaggerating his contrasts. In fact, by utilising that portion of the scale wrongly termed by Hurter and Driffield the "period of under-exposure."

Let us now examine the effect on a plate of a series of graduated exposures. A large number of measurements of the transparencies of plates exposed in a graduated manner in Spurge's sensitometer, and in other ways, have been published by Capt. Abney and Messrs. Hurter and Driffield, and others, any one of which will do for our present purpose. We will take a plate exposed by Abney, and measured both by him and the writer. It is one that has been frequently spoken of at the Camera Club, and is typical of all the others. We will plot two curves from the measurements of this plate. In one the logarithms of the exposures are set off horizontally as abscissæ, and the coresponding transparencies are measured vertically as ordinates. This is the method of plotting used by Abney in his method of speed determination. In the other Hurter and Driffield's method is used, and the difference is that the *logarithms* of the transparencies, or "densities" as they are termed by those authors, are plotted vertically as ordinates.

Let us compare the methods of speed determination of these two authors. It will be seen from Fig. 1† that the speed of the plate is given by the points marked A and

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* Paper read on Thursday, November 23rd, at the Camera Club. Communicated by the Author.

† The diagrams will appear in next week's issue.

B, in the diagram, according to Hurter and Driffield and Abney's methods.

According to the former, the *slowness* of the plate is proportional to 6·5, about, in some arbitrary units, according to the latter it is proportional to about 1 in some *other* arbitrary units. There is no reason at first sight why these should not both be true. That point will be considered later. The thing to be noticed, however, in this diagram is the part of the curve from which the number representing the slowness of the plate is deduced. By Abney's methods it is deduced from the part lying between the exposures 2 and 32 in the arbitrary units we are considering. By Hurter and Driffield's method it is deduced from the part of the curve lying between the exposures 20 and 101. We will lay no stress on the fact that, in this particular case, as in fact in all, the figure is deduced from a more extended set of exposures by Abney's methods than by Hurter and Driffield's. But it is most important to notice that, by Abney's method, the figure roughly representing the speed is deduced from a set of exposures that give densities on the negative that are practically useful to the photographer, while by Hurter and Driffield's method it is deduced from a part of the curve in which the transparencies are of hardly any printing value. Abney's figure is deduced from a negative with transparencies, ranging from 94 per cent. to 16½ per cent., while Hurter and Driffield's is deduced from a negative with transparencies ranging from 26½ per cent. to 4½ per cent. Surely no further illustration is needed of the comparative futility of Hurter and Driffield's method, for which they have claimed so much.

Again, let us look a little more closely into the printing values of the two types of negative. In the case of the negative used by Abney, the speed of the plate is deduced from a series of exposures such that the resulting transparency of any part of the negative relative to another part, that is to say, the printing value of that part of the negative is inversely proportional to the exposure of that part. This is Hurter and Driffield's criterion for a perfect negative. (*See* "Photo-Chemical Investigations," p. 1.)

But in the case of the negative given by the series of exposures utilised by Hurter and Driffield it is quite easy to show, by an algebraical transformation of their approximate equation, that the printing value is inversely proportional to some power of the exposure; so that, while Abney's avowedly empirical formula gives approximately the required perfect negative, as defined by Hurter and Driffield, their own formula, which is put forward as an approximation to a formula not empiric, does nothing of the sort. In fact, their formula, and whole method of speed determination, is based on a misconception.* The quantity found no doubt does roughly represent the speed of the plate in a certain way, when exposed and treated in a particular manner; but it is of no use, because this particular manner is one in which no ordinary photographer would think of treating a plate, whereas Abney's method gives a quantity which does not pretend to give more than a rough idea of the speed under normal treatment. From the nature of things it can do no more than this. And its value consists in the fact that the series of transparencies from which it is derived is just that series that the average photographer utilises in his ordinary work.

It remains for us now to see what relation there is between the speeds derived by means of Abney's method, and by Hurter and Driffield's. It may easily happen that the relative speed of two plates will come out the same when determined by either method, but it may equally easily happen that this is far from being the case. In fact, a glance at Fig. 1 will show that it is only the case when the range of the two plates is about the same—that is to say, when the range in which the printing values are nearly inversely proportional to the exposures is the same in both.

The best method of examining this point will be to take several plates and plot their curves according to the two methods, on the same scale, and then examine the results. In order to be absolutely impartial, we will take two plates referred to in Abney's paper at the Camera Club Conference, four plates measured by the writer, and three measured by Hurter and Driffield. The two plates referred to in Abney's paper are a wet plate and a "lantern" plate. *A priori*, if the lantern plate is a good one we should expect it to give a negative approximating in gradation to that on the wet plate, since this "wet plate" quality is usually desired in lantern plates. That is to say, the scales and ranges of the two plates would be expected to be similar, and the relative speed, as has already been pointed out, should be nearly the same when measured by either method. It is hard to apply Hurter and Driffield's method in this case, since the plates have not been measured through a long enough range, but, so far as can be judged, it appears on plotting the requisite curves that the relative speeds of the two are nearly identical, and the lantern plate comes out about 2·7 times as fast as the wet plate, by whichever method it is measured.

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* The printing value of a negative depends on the differences of the transparencies of the various parts, so that we may fairly take $\frac{dT}{dI}$, the differential of the transparency, for its measure. Since the curve of a plate as plotted by Abney, or by Hurter and Driffield, always contains a point of inflexion, for parts near this point we may substitute the equation of a straight line for that of the curve, and this is what Hurter and Driffield have done to get their approximate equation. The equation of the straight line, in the case of Abney's curve, is

$$T = A - B \log I$$

where A and B are constants, whence $\frac{dT}{dI} = -\frac{B}{I}$, and the printing value is inversely proportional to the exposure. But the equation of Hurter and Driffield's line is

$$\log. T = B^1 \log I\ A^1,$$
$$B^1 - I$$

whence $\frac{dT}{dI} = \frac{T}{I} B^1 = \kappa I$ where κ is some constant, and this expression in no way coincides with the required criterion.

(*To be continued.*)

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, DECEMBER 15, 1893.

All Advertisements and communications relating to money matters or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.

All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.

The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent.

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
Including postage to the Continent, Canada, the United States, Australia, India, and China, &c.	13 0	6 6	3 3

ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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LIVING PHOTOGRAPHS.

LIVING pictures are provided for us by the dramatists in endless variety and profusion; *tableaux vivants* are well known, especially as a means of providing side-shows at bazaars and other charitable ventures, when theatrical performances would be considered indecorous, and Messrs. Brock have often proved that living fireworks are not impossible of attainment. But living photographs are certainly somewhat out of the common, and when, therefore, it was announced that Professor Marshall Ward would give an address at the Camera Club on the subject, some curiosity was evinced as to what was comprehended under such an enigmatical title. The title is certainly new, but the ground which it covers is not quite so fresh as those who have little opportunity for following the progress of general science might suppose. Indeed, Professor Ward himself addressed the Royal Society on the same topic just twelve months ago, and by first calling our readers' attention to this former communication of his we shall best point out what he means by living photographs.

The starting point of Professor Ward's researches is an observation recorded fifteen years ago by two other workers, Messrs. Downs and Blunt, who found that if glass tubes charged with a medium suitable for the development of certain bacteria were exposed to light, the liquid became purified and clear in appearance, while similar tubes kept in darkness became clouded, and in some cases offensive. Professor Ward took up the thread of this interesting line of research when he was engaged in investigating the bacteria which find their home in the Thames, and of the behaviour of certain bacteria in water generally. By accident, or design, he hit upon a typical bacterium for his experiments, one known technically as the *Bacillus anthracis*, so called because it is associated with, and apparently the active cause of, that terrible disease among sheep and cattle known as anthrax or splenic fever—a disorder which is communicable to man, and has often been called wool-sorters' disease.

Professor Ward found in a few drachms of Thames water countless multitudes of these anthrax spores; and after placing samples of the liquid in test tubes, he exposed them to sunlight, with the result that the spores were killed in a few days. He found that ordinary reflected daylight was quite as effectual, but that a longer time was required to bring about the same catastrophe. So far, he had followed the experiments of previous observers. His next idea was to make plate-cultures of these organisms, so that the effect of light upon them could be more clearly demonstrated. It may be here noted that the principal means of studying what may be called the life history of these minute organisms is by making cultures of them—that is to say, employing a medium in which they will thrive, and keeping them at a temperature which by experience is found to promote their rapid multiplication. A broth made from either beef or chicken with some gelatine, or Agar-Agar (Singapore seaweed, otherwise called Bengal isinglass), added to it is often employed. Such a mixture, warmed and poured out on a glass surface, will speedily set and form a film, upon which colonies of bacteria will soon come into being, provided that it is sown in the first instance with the requisite spores.

A plate thus prepared forms the printing material employed by Professor Ward in making his living photographs, while the negative is represented by a stencil plate cut with a large letter—say F—which is fastened to the culture-plate in such a way that light can only reach the gelatine surface through the stencil. Each plate with its stencil was next exposed to sunlight for a few hours, the experiment taking place in the winter months, when the light is weak, and when there was little chance of the gelatine film liquefying under the influence of heat rays. After this the plates were kept warm in an incubator for six hours, and were finally examined. The result was not unexpected. The light had killed the spores, and what remained of them was too small to be visible. The stencil letter in every case appeared as clear glass, while the rest of the prepared surface which had been protected from light action was rendered dull and opaque by the presence of myriads of living bacteria. If, instead of sunlight, the electric arc-light be employed, exactly the same results are brought about, but the time of exposure must be prolonged.

Experiments with coloured glasses—and subsequently with the spectrum itself—showed that the rays which are the active ones in bringing about the wholesale slaughter of bacteria are the violet and blue—the red, orange, and yellow rays being as protective to these micro-organisms as they are to certain salts of silver.

It must be admitted that these living photographs are of scientific interest only. They are certainly not artistic, for half-tones they have none, and there is not much opportunity for pictorial display in a letter of the alphabet, but they are photographs for all that, and possibly they foreshadow discoveries which may be of immense importance to the world at large. Professor Ward certainly hinted at something of this kind when he spoke of his recent experiments with the electric arc-light, and he went so far as to say that that light would probably be found the best kind of disinfectant for places, such as hospitals, where pathogenic germs most do congregate. If these experiments should help to solve the problem of lessening the mortality from zymotic disease, photographers, as well as all other members of the community, will pass a still more cordial vote of thanks to Professor Ward, than that he received at the Camera Club, for his interesting lecture.

PHOTO-ZINCO IN HALF-TONE.

BY W. T. WILKINSON.

NEARLY all beginners at photographic process work commence by making their negatives on dry plates; and I, at various times, whilst not exactly advocating their use, have certainly encouraged it: but, now, having learnt wisdom from experience, I cannot find compensating advantage accruing from their use. The chief argument in favour of dry plates put forward by most is the old one of the fickleness of the silver bath. That, I take it, is a notion left over from the time when the wet-collodion process was in general use, and when it was so necessary, in order to obtain the utmost sensitiveness, to work the bath in such condition that even a variation of temperature would cause fog. For photo-zinco this is all changed, a large amount of acid, being requisite to ensure clearness of lines, gives the desired stability to the bath and, consequently, freedom from fog and uncertainty.

This being so, it is possible to make three negatives, finished and ready for printing, in less time than one dry-plate negative can be done; so the sooner experimentalists abandon dry plates, and try the wet process, the better for results, certainty, and economy.

The Grained Screen.—This is a very important piece of apparatus: and I have here by favour of Messrs. Penrose, four specimens of Levy's ruled screen, and from Percy Lund & Co. a specimen of Woolf's reproduced screen. As far as results go, each is as good as the other, although some operators insist that the Levy is best, and others, again, that Woolf's is; so, for my own part, I would say, if you have either you can go confidently to work and laugh at anyone who says the other (*i.e.*, the one you have *not* got) is the best.

From the thickness of the screens, it is obvious that some provision must be made in the dark slide for them. In all dark slides now made for the work this is managed by making the dark slide extra thick, leaving a space of from three-eighths to five-eighths in front of the sensitive plate and behind sliding shutter, and in this recess placing a carrier to hold the screen.

The next step to take will be to make a print on the zinc, this being usually done either in bichromated albumen or in bitumen, the albumen process requiring a less exposure to light than the bitumen; but it has the drawback in requiring rolling up with ink before etching, and this is an operation requiring very great skill and care. This can, to some extent, be got over by dusting over with resin and warming the plate, which gives a resist as hard as bitumen.

Bitumen is best dissolved in chloroform, and the zinc plate sent round will show you just about the proper thickness the film of bitumen must be. If at all thicker, there will be a difficulty in getting sufficient exposure to penetrate the film to the metal: hence it will float away under the turpentine used for development.

Specimens of straight polished zinc as used for line work, and of round polished zinc as necessary for half-tone prints, are sent round for comparison.

I have also here specimens of the rollers used—viz., a nap roller and a glazed one. The nap roller is the ordinary lithographic roller, the grain of the leather being outside. The preparation of such a roller is very important, as, unless it is properly done, the roller will be useless. A roller in the condition now shown you (*i.e.*, quite new) is worth 15s.; but if it were in really good working order it would be cheap at 25s.

This roller is a glazed one, and is used to ink up the surface of the plate: only, as you can see, the surface is hard and smooth.

Etching a half-tone block requires great skill and care, and calls for ability to use the brush in order to get the best effects, and unskilful use of the brush will quickly spoil what would otherwise be a good block.

The use of albumen and bitumen for printing on the zinc is now threatened with supercession, a process called Enameline—of which I now pass round a specimen—

bidding fair to be better adapted than either for the purpose.

The process is a secret one (being of American origin), so I cannot presume to even make a guess at it; but I will pass round another specimen done by a process of my own, which has a very similar appearance to the other, and is done with a mixture of isinglass, white of egg, and bichromate.

The process is in itself very simple. A zinc plate framed in a weak bath of nitric acid, is coated and whirled, then dried, exposed to light under the negative for from three to five tints of a Johnson actinometer; on removal, the image can be seen quite bright. It is next immersed in cold water to remove the bichromate and unaltered albumen, and dried. It is now carefully examined under a powerful glass, and if the whole of the grain can be seen sharp, and without any rottenness in any part, the plate is ready for burning in, an operation done on a hot plate or in a Bunsen flame. Here the image gradually develops until a beautiful blue-black is attained, when it is ready for the etching bath without any rolling up of any kind; and, when the etching is complete, the plate is mounted and printed from with the enamel image on it intact. This method is only used for half-tone blocks, as the ordinary albumen process gives all that is necessary for line work.—*London and Provincial Photographic Association.*

PHOTOGRAPHY IN FRANCE.

BY LEON VIDAL.

BOOK ILLUSTRATION BY THE AID OF PHOTOGRAPHY AND EXHIBITIONS OF AN ARTISTIC CHARACTER — REOPENING OF PHOTOGRAPHIC SOCIETIES — PHOTOCHROMOGRAPHICAL APPARATUS FOR MEDICAL OBSERVATIONS — VELVET PAPER FOR MAKING CARBON PRINTS DIRECT — PICTURES IN COLOURS, BY MM. LUMIERE (FILS), AFTER THE LIPPMANN PROCESS—DISTINCTION NECESSARY TO BE DRAWN BETWEEN IMAGES OF THIS DESCRIPTION AND THOSE OBTAINED BY INDIRECT MEANS—INCREASE OF NUMBER OF PHOTOGRAPHIC ASSOCIATIONS — UTILITY OF A GENERAL UNDERSTANDING WITH THE VIEW OF MAKING COLLECTIONS OF DOCUMENTARY PROOFS, AND OF EXCHANGING THESE DOCUMENTS—BIBLIOGRAPHY.

THE application of photography to the illustration of books and periodicals is becoming more and more general, the results being far more satisfactory than any which could be obtained by the old methods of illustration. The typographical line-screen process is now applied with marked success to popular publications, the paper of which is often, however, of very inferior quality.

A publication of large circulation, *The Encyclopædical Review*, now makes use of this process, and as a consequence its pictures present a degree of accuracy impossible to attain by any other method.

It is certain that with good paper, and with slow and careful printing, superb results may be obtained, such as may be seen in that admirable periodical, *The Illustrated Figaro*, printed and engraved by Boussod, Valadon, & Co.

The knowledge of the employment of line screens is becoming more and more general, and will, it is to be hoped, lead to the constant use of this very curious method of the transformation of photographic plates to half-tint blocks.

The importance of this application to book illustration is now so widely recognised that new societies are constantly being organised for the encouragement of efforts in the way of productions of an essentially artistic character. The Photo Club of Paris, for instance, is preparing a special exhibition of artistic photography, which, it is confidently hoped, will prove a great success. We also learn that the Circle of the Library, composed of the principal printers and publishers of Paris, are to hold a great exhibition of everything relating to the art of book illustration, of which a considerable portion will be devoted to the speciality of photography.

We should not be surprised to see established very soon courses of æsthetic photography, and of artistic retouching of plates and proofs. Certainly it would be a good means of establishing a school for amateurs or even for professionals, with more knowledge of the artistic element than can be derived from photography alone.

Photographic societies are now resuming their regular meetings. The French Society of Photography re-opened on the 3rd of November, but communications have not been very numerous as yet. One feels that the holidays are hardly over. The entire Bureau has been conspicuous by its absence, a fact almost unprecedented! Among the more interesting communications we will cite that of M. Londe, relative to a new photographic apparatus for medical observations. This apparatus is worthy of a short description. It is composed of a series of twelve small cameras, grouped upon one single box, of which the anterior surface holds in three rows the twelve lenses, all furnished with shutters with electric attachments. One plate, of the size of about 30 by 40 centimètres, receives all the images. These can be obtained at regular intervals, but of varying duration, according to the requirements of the operator. In order to realise that object the electric current traverses a Trouvé interrupter, very ingeniously disposed, and rendering it possible to take a view at regular intervals, say, of a second, or of a tenth, or of the twentieth part of a second. These impressions may be periodic or not, as desired. The order to follow as to the operation of the lenses may also vary, thanks to a distributor which has to be regulated previously.

The idea realised is not new, but the apparatus is very ingeniously arranged. This instrument has been constructed for the use of the Saltpetrière. It is of a nature calculated to render essential service to science generally, and more especially to medical observations.

The tissue or velvet paper of the antique is once more to the front. In 1889 we drew attention to its power of printing carbon pictures direct—that is to say, without being obliged to operate with either single or double transfers. This process (little practised as yet) gives very fine results. The tissue is sold ready prepared, but it requires to be sensitised in a bichromate bath, like ordinary carbon tissue. It is coated with gelatine, and whilst this layer is still moist it must be carefully powdered with fine carbon dust, lamp-black, cleaned, for instance, after desiccation, and all that then remains is to sensitise. Exposure is made in a printing frame, as usual, and the development—a somewhat delicate operation—is effected by suspending the sheet of tissue vertically to a rod of wood, and pouring warm water over it at 25 C., containing in suspension sawdust from fir, pitch, or deal wood, with the object of producing a slight friction, for the purpose of removing the particles of carbon which are not required in forming the image. This somewhat tedious operation requires very great care in order to avoid fraying until the image is formed by the particles imprisoned by the gelatine rendered insoluble by the light, whilst those particles which form the superior coating of the preparation are carried off by the gentle rubbing process which has been indicated.

There is no doubt that the proofs thus obtained are of a beautiful velvety black, and from an artistic point of view are well worth the little extra trouble entailed by the delicacy and length of the process.

Some new and very remarkable pictures in colours, obtained by MM. Lumière, by the Lippmann process, have been projected before the Society of Physics, which have evoked warm and unanimous admiration. Among the most successful are some portraits which present some really astonishing effects. Whatever may have been stated in England to the contrary, and in spite of the objections suggested by Mr. Ives, photography in colours is now an accomplished fact, which, in the fulness of time, will be perfected and developed into a very practical process. From this time all must be forced to admit that the image in colours can be directly produced upon the plate in a dark room, without artifices, and in the colours of the original. "But," says the sceptic, "these colours still leave something wanting, supposing they are those of the model, yet they perhaps differ from it a little." Well, and if so, it entails nothing more vexatious than a pose of longer duration, and the selection of a more convenient angle. Let us then only have a little patience, for all these difficulties as to details will assuredly be overcome, and the solution of this important problem will be complete.

Truly there can be no comparison between these direct heliochromatic images and the polychromatic impressions of Ducos, Du Hauron, Vogel and Kurtz, Ives, &c. Interesting as are all these methods of polychromatic reproduction, they have nothing in common with a direct process. They are in reality everything that is most indirect.

The number of photographic associations is ever increasing. Yet, up to the present time, in spite of the establishment of a national union, there seems to be no solid bond of union amongst them. Perhaps this bond of union might be found in the carrying out of the idea of Mr. J. Harrison with regard to the establishment of a central office for the collection and exchange of photographic documents relating to all branches of science, of history, and of art. There would be found scope for the utilisation of efforts which are frequently rendered fruitless for want of a definite aim, well understood. For our part, we would willingly second any movement of the kind, in the hope of being supported in our endeavours.

Among the photographic works lately published in France must be noted the "Miscellany of Public Conferences of the Conservatoire National des Arts et Métiers." This work comprehends photographic art and science. The contributors include members of the Institute, learned professors, and distinguished amateurs. This handsome volume of about 560 pages is, in addition, illustrated with numerous plates. It has been edited, with all their well-known care and ability, by the firm of Gauthier, Villars, & Son.

THE LUMIÈRE-LIPPMANN COLOUR PHOTOGRAPHY.

BY F. E. IVES.

In the spring of 1882 there were exhibited in the Photographic Exhibition in the Champs de Mars, in Paris, photographs by the Lippmann process of a parrot, a branch of holly, pieces of coloured glass, &c., which Alphonse Berget and others declared were true reproductions of the colours of the objects. I could see in these photographs only the colours of thin films, metallic and changeable as such colours usually are, and in some instances not even confined to the coloured objects themselves, but spreading over objects that were uncoloured in the original. These pictures were also devoid of either whites or blacks, the high-lights of the objects being rendered more like black than the shadows. Others, notably Mr. Cameron Swan, who wrote a letter on the subject to the *Times*, noticed the same defects in these photographs, and Captain Abney, who had experimented with the process, found that by varying the time of exposure he was able to make a blue photograph with red light, and *vice versa*, and coloured photographs with white light. It was generally admitted that the results obtained by Professor Lippmann did not sustain the claims made for the process, and when it was announced this year that the Brothers Lumière had succeeded in so far improving upon Lippmann's method as to obtain really satisfactory colour photographs of natural landscapes, people who had seen the photographs for which such extravagant and inaccurate claims were made a year before were naturally, and very justly, sceptical.

Now, however, the Lumière photographs have been shown in public in London, and although there is still a certain amount of mystery surrounding them, it is possible to form a truer estimate of their character and importance, and to make an intelligent comparison with another and more successful method, based upon quite different scientific principles.

The Lumière photographs are about three inches square, and by light reflected from their surface at most angles they have much the same appearance as the French albumen process lantern positives, the high-lights of the picture looking like clear glass, and the shadows having the appeaaance of an albumen or gelatine film filled up with a dense dark-coloured deposit of silver. It is said that by transparency they are negative images, but those shown are sealed up so that they cannot be examined by transmitted light.

Unlike Lippmann's photographs, these examples show colour only when the light is reflected from the surface at one particular angle, and for that reason the colours are not "changeable." This in itself is really a very important improvement, although it carries us farther away from, instead of nearer to, the popularly desired conditions in colour photography. It is, indeed, a significant fact that real and undoubted improvement intensifies instead of lessening a characteristic defect of the original Lippmann photographs, which some writers have not hesitated to say would "undoubtedly" be overcome—namely, the inability to see the colours at all angles.

If the pictures were uncovered the critical angle would undoubtedly be perpendicular to the surface of the plate, but it would then be necessary to provide some means for illumination and vision in precisely the same direction. It is also necessary that the source of light be large enough to illuminate the entire surface of the photograph equally with parallel rays, and it should be seen by parallel rays coming from it. A rough approximation to these conditions is secured by covering the picture with a shallow prism, and then examining it by the reflected light of a sufficient expanse of even white or grey sky, holding the picture at nearly arm's length from the eye. More satisfactory results could doubtless be obtained by means of a special device, which could be used like the stereoscope or the photochromoscope. It would be quite easy in this way to exactly fulfil the theoretical requirements for illumination and vision, and at the same time to magnify the picture, which must now be made to occupy only a very small angle of vision in order to be seen all at once.

(*To be continued.*)

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CORRESPONDENCE.

THE ORIGINATORS OF PHOTOGRAPHY.

SIR,—I am afraid I must have written my article on the above subject very badly or Mr. Spiller has read it carelessly; yet, if I have been obscure I am glad, as it has drawn my old friend into defending the case of the scientists. Mr. Spiller says he is "at a loss in trying to fathom the motive which actuates Mr. Robinson in persistently depreciating the work of scientific men in connection with the history and progress of photography." Seeing that this is the first time I have touched the history of photography, except very incidentally, I don't know how that can be true. But however much at a loss my friend professes to be at the beginning, he ends by knowing all about it. He says confidently, as though he had discovered another fact in nature. "The whole point of the argument is, according to Mr. Robinson, that no good can be expected from anybody who is not an artist." It is really very good of Mr. Spiller to find so adequate an object for my article; but he does not shine here as a votary of science who deals with facts. I made no claim whatever for artists. I don't even mention them, except to point out, what Mr. Spiller will not deny, that for Daguerreotype and the collodion process we are indebted to a painter and a sculptor. I clearly stated at the beginning of the article that it was intended for those who are always telling us there would be no photography if it had not been for science, a claim never made by the masters of science. The term "science" is very wide, and is made to cover a multitude of sins; but I have quite as much reverence for true science as even Mr. Spiller. We may both worship afar off. It is the shallow pretenders who are always talking and never doing to whom I object, and I deplore the awful waste of time and brain power that takes place over so-called scientific experiments and talk that could never be other than abortive. I also object to those who, when a process or anything else is worked out and successful, claim the credit because of some obscure suggestion of their own made years ago. In short, my paper went to show that we are more indebted to workers than thinkers. Mr. Spiller does not deny my facts, except in the case of Hardwich; but he unconsciously supplies one with another sample of the monstrous claims to which I have alluded. He says: "Where should we have been from 1851 to 1878 but for Schönbein's gun cotton?" &c., of which Archer made collodion. This is like saying that if Nature had not invented wheat we should have had no bread. I rather think we should have found a substitute. If we could not get bread we should have done as the French Princess recommended, eaten buns! If there had been no collodion it is just conceivable that we should have had the gelatine process sooner. Does Mr. Spiller claim Schönbein as a "father of photography," together with those whose spurious claims I mentioned?

I stated nothing about Hardwich that is not true. He was a great chemist, but he had the crudest ideas of what a picture should be. I was on the Collodion Committee with him, and I distinctly remember how the great chemist entirely overbore the practical men. He insisted that we ought to want a collodion that gave intensity; we preferred the gradation that the addition of bromide gave. I think it was Jabez Hughes, a practical man, who upset the Hardwich theory and practice, and got us into the right track again.

Mr. Spiller concludes by saying, "Of the list of names quoted by Mr. Robinson, as being the originators of photography, how few turn out to be really artists." I made no claim, as I have said, that photography was invented by artists, I simply endeavoured to show that we owed more to practical men than scientists, and I finished my article by stating that I purposely omitted those who had applied photography, and in the very article to which Mr. Spiller objects, I deprecate artists wasting time in experiments; that is, indeed, the aim and end of my present preaching. In the article he will find these words: "Let those who pose as photographers do all in their power to improve its *application*, and let the inventors supply the materials." But we have more inventions (or what are supposed to be such) than we know what to do with at present, and we ask the inventors to give us a little breathing space that we may try to put the best of them to some use. I hope Mr. Spiller will believe that I don't accuse him personally of troubling us too much. H. P. ROBINSON.

Tunbridge Wells, December 9th, 1893.

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

December 7th.—Mr. A. Haddon in the Chair.

Mr. W. T. Wilkinson gave a description of a process for making type-high blocks of half-tone subjects, and showed some of the apparatus required and blocks in various stages of progress. (See page 793.)

The Chairman inquired as to whether the electro method might not be used in place of an acid bath for etching the zinc.

Mr. Wilkinson replied that it might, but was more expensive, and it was necessary that the anode and cathode should be of equal size.

The Chairman thought there was less likelihood of undercutting with the electro method.

In reply to a question as to the average exposure required for the zinc plate with albumen, Mr. Wilkinson said that three tints on Johnson's actinometer might about represent it. Line subjects require deeper etching than half-tone blocks, and may take from four to eight times as long.

Mr. Weir Brown asked how long a silvered mirror will keep in good condition.

Mr. Wilkinson replied that so much depended upon the care taken of it. It should be put away warm and dry, and occasionally polished with jewellers' rouge. Thus treated, he had one now in use which he had had for several years.

Hackney Photographic Society.

December 5th, 1893.—Mr. Houghton in the Chair.

Question asked: What effect would snow have in winter as regards exposure?

Reply: Disregard the glare and whiteness and expose for the dark portions of the subject. Snow pictures are generally under-exposed. Fast plates give more density than formerly. Select a plate with a thick emulsion.

Question: What time is sufficient for washing an uranium-toned bromide print? The instructions say, "Wash till all yellow traces disappear." Prints had been left in a long time, and the picture nearly disappeared altogether.

Reply: One must watch them carefully and take out and inspect them in daylight, and remove as soon as the last trace of yellow has gone, not forgetting the back of the paper.

Question: What advantages have isochromatic plates over ordinary ones for winter landscapes?

Reply: There is always an advantage in yellow light. Mr. Birt Acres has said it gave roundness.

Mr. Hudson stated an interesting fact he had just read, under date 1859, that a bullet in motion had been photographed. It was, however, explained to him that it was not done by a lens. The exposure is made by an electric spark; the electric contact is made by the bullet itself whilst passing the plate.

A discussion then took place on excursion matters, with a result that a sub-committee was formed to arrange dates, places, &c., and leaders for the summer outings, and that a list be published in advance.

Putney Photographic Society.

Ordinary Meeting, on Monday, 4th inst.—Mr. H. Faulkner in the Chair.

The Chairman said that, in the absence, through illness, of Mr. Horsley Hinton, who was to have read a paper on "Work in the Field," Mr. A. E. Leblanc, representing Messrs. A. Schwarz & Co., had very kindly undertaken to give a demonstration on Dr. Andresen's cartridges. The Chairman further said that Mr. Horsley Hinton was now reported to be making satisfactory progress towards recovery, and that there was every reason to hope that he would still be able to give his paper before the close of the season.

Mr. Leblanc said that no doubt Dr. Andresen's preparations were well known in their usual form to most of the members present. He had come that evening to point out the advantages of the cartridge form. This form had been originally applied to developers only, and introduced for the convenience of tourists: but the immediate success of the new departure had been such that cartridges were at the present time issued for an acid fixing bath for general purposes, and for a combined toning and fixing bath for albumen and gelatino-chloride papers, in addition to developing cartridges of amidol, eikonogen, and metol. The advantages of the cartridges to travellers are numerous. Amongst others may be mentioned that the salts are in a dry state, and highly concentrated, and that they therefore occupy very little space. All risks of broken bottles, and the wasted solutions being absorbed by and damaging and destroying other contents of the travelling bag, were done away with. They were also very convenient in use. When required, it is only necessary to empty the contents of the cartridge into the proper quantity of water. The solution is then ready for immediate use. Each cartridge, being hermetically sealed, will keep indefinitely in any climate, and, as each is only sufficient for a limited quantity of solution, they will be found very useful in places where the ordinary chemicals will not keep satisfactorily in their dry or dissolved state, and for amateurs everywhere who only develop or tone small quantities at intervals. In summarising the qualities of the various developers, Mr. Leblanc said that eikonogen was first specially made as an all-round developer for negatives, papers, and lantern slides for India and China. Rodinal was a powerful developer, but, being a liquid, could of course not be used in the cartridge form. The amidol acid developer did not keep long in solution, and should, therefore, be mixed as required. It was a useful all-round developer. Metol was the latest of Dr. Andresen's developers, and combined the advantages of the others without any of their less satisfactory qualities. It would keep in solution for any reasonable time. He had personally used it nearly three months after mixing without noticing any loss of power. With this developer, potassium bromide does not retard, but has only a clearing action. Glacial acetic acid was the best retarder. Glycin is a special developer for lantern plates and reproductions. It keeps well in solution, and development may be prolonged without fear of fog or veil. The fixing cartridges make an acid fixing and clearing bath, and have the advantage that negatives or prints may be passed into them direct from the developer. The developing action ceases immediately, which is by no means the case when intermediate washing has to be resorted to. The combined toning and fixing cartridges made up a complete toning and fixing bath, equally suitable for albumen and gelatino-chloride prints, simply by being dissolved in the proper quantity of water, and was ready for use immediately. Mr. Leblanc then proceeded to develop a couple of negatives and some prints on "Nikko" paper (exposures unknown) in metol, and to tone some "Solio" and Paget P.O.P. prints. The results were very satisfactory, and the solutions made from the cartridges acted with the greatest regularity and smoothness. It should be observed that development should be carried much further than appearances would at first lead one to judge: in fact, he always developed until the picture appeared in fair detail on the back of the negative. Prints should be printed fully for the combined toning and fixing bath; but, in this particular, there was no difference from the ordinary formulæ. Mr. Leblanc said that the use of Dr. Andresen's developers and fixing solutions did away with the necessity for very thorough washing between each operation, and that the great care generally necessary to keep all trace of other solutions away from any one was with them of much less importance. He had found no injurious effect from handling a negative in the developer with fingers which had just been in the fixing solution. He had never had any trouble with his fingers when working with metol, although he had used this developer even when there were cuts and scratches on them.

The lecture and demonstration was followed with sustained interest throughout, as was evidenced by the lively exchange of questions and answers between his audience and the lecturer, and by the hearty vote of thanks to him and his firm, which closed the evening's proceedings.

GREENWICH PHOTOGRAPHIC SOCIETY.

ON the 6th inst. the meeting was held at the Lecture Hall, Royal Hill, with Professor HADDON in the Chair.

Mr. FRY demonstrated the Paget Plate Company's process of partial printing-out and after-development, which has already been described in the PHOTOGRAPHIC NEWS. After which Professor HADDON said that the thanks of all were due to the Paget Company for a useful method of producing prints after a slight exposure to daylight. Any business man, who would get up an hour before breakfast, could make in that time as many initial exposures (which could be completed in the evening) as would occupy him all day to make, if he were obliged to print an image right out. Any person could see the advantage of this addition to our knowledge. He was glad that Mr. Fry had called attention to the necessity of longer bromising of the print. The action of the bromide was to convert the chloride and organic salts of silver in the paper to bromide of silver, which was not so easily reduced by light action under a developer, and was, therefore, more under control. As far as the washing out of the developer before toning is concerned, he referred to some experiments made by Mr. Grundy and himself, and pointed out that the *method* of washing was most important, and deprecated long soaking as being not only useless, but prejudicial.

Upon the question of separate *versus* combined toning baths, Mr. Haddon said the evidence was not conclusive. He had seen prints made thirty-five years ago, toned and fixed in a combined bath, which were practically unaltered, whilst others made comparatively recently were faded. The same remarks applied to separate baths.

CENTRAL PHOTOGRAPHIC CLUB.

ON Friday last, Mr. ALGERNON BROOKER, of Hastings, delivered his lecture, "Winchelsea and Rye," illustrated by 140 slides. Starting from Hastings, he led his hearers on through Ecclesbourne and Fairlight to Winchelsea, pointing out the places of interest *en route*. He gave a short, historical account of both Winchelsea and Rye, illustrated by ancient and modern maps, showing the great change which has taken place in the surface of that part of Sussex, by the receding of the sea and changing of the course of the River Rother. Views of the church at Winchelsea, its monuments, and some details of carvings, were shown and described. Comparative exposures made on "Sandell" and "backed ordinary" plates were called attention to. After various "photographic bits," in the way of gates and odd corners, Mr. Brooker proceeded to deal with Rye, and managed to get some amusement out of his description of the Corporate seal. The lecturer's best hits in description were of the bakery at Rye and its doorstep tenant, who at night always felt the cold, and was at times troubled with "symminess in the head." The wise descriptions of the weather, by the ferryman at Rye, were also referred to. A description of the "pirates' chains," and the pillory in the Town Hall at Rye, and the difficulties surmounted in photographing them, followed by a series of paddling scenes on Hastings beach, brought a most instructive evening to a close.

Mr. Thomas Fall has, by request, consented to allow his pictures to remain on view, at the rooms of the Central Photographic Club, for one week further.

On Friday, December 15th, instead of the discussion, Films *v.* Glass, Mr. JOHN HOWSON will give his first demonstration of the working of the new Ilford Matt Surface Paper at the Club Rooms, Coleman's Hotel, Henrietta Street, Covent Garden, W.C.

WOODFORD PHOTOGRAPHIC SOCIETY.

Meeting on December 7th.—The PRESIDENT in the Chair.

MR. H. T. MALBY read a paper on "Copying." Speaking of amateurs' first attempts to copy photographs, paintings, or engravings, frequently attended by failure, he gave a record of his own work and procedure. The tripod being so very difficult to manipulate for copying to scale, lantern-slides were shown of a simple, home-made contrivance for holding copy and camera, allowing longitudinal adjustment for focussing and lateral movement, of either copy or camera, for those cases in which an illustration had to be copied from one side or corner of a large drawing, the camera back being always parallel to the copy board.

For line work, the lecturer recommended the slowest plate possible, having been very successful with plates coated with the Ilford special lantern emulsion, and most with some specially thickly coated by the Britannia Works Company. For half-tone copying, his best results had been obtained on Ilford ordinary plates, and in working from coloured copies, Ilford isochromatic.

Correct exposure was stated to be of the greatest importance, a Watkins' Exposure Meter being recommended, and for line work backing the plate is absolutely necessary.

In addition to lantern slides illustrating the apparatus used, several were shown of the different classes of work, details of the methods of working accompanying their appearance on the screen.

Next meeting (informal), December 21st.—Discussion on toning gelatino-chloride prints. Visitors invited.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, December 4th, at Hanover Hall, Hanover Park, Peckham.—Mr. MAURICE HOWELL (Vice-President) in the Chair.

THE evening was devoted to a demonstration (by request) of platinotype printing, by F. W. EDWARDS, Esq., the President of the Society.

In working platinotype, it is necessary to avoid dampness during printing, as it causes flatness and degradation of the prints. During cold weather he considered it advisable to use the developer slightly warm. Cold solutions increased contrast, while a warmer developer brought out more detail. A properly-exposed print could be left in the developer for any length of time without any fear of over-development. The presence of air bubbles at first did not matter. Wet the spots and they develop up like the rest of the picture. Large prints can be developed a portion at the time, by drawing them through the solution again and again. It is necessary not to touch the prints, before development, with fingers which have become contaminated with acid from the fixing bath. Under-exposed prints may sometimes be saved by developing in a hot bath. The paper takes less time to print than albumenised paper. During printing it must be shielded from damp by backing it up with rubber pads. To anyone starting the process, Mr. Edwards recommended the use of one negative until good results were obtained. Between forty and fifty prints were developed, fixed, and washed during the meeting. Attendance 58.

Bath Photographic Society.

An ordinary meeting was held at the Institution on Wednesday, the 29th ult., Mr. Austin J. King (President) in the chair. Formal business having been dispatched, the chair was taken by the Very Rev. Monsignor Williams to enable the President to give a lecture, entitled "Through the Basque Provinces."

Mr. Austin J. King commenced by saying that a man must be very hard to please who cannot find much to interest him in the district which lies between Bordeaux in France and San Sebastian in Spain. The most wonderful vineyards in the world, every varying feature of climate and soil, almost every type of vegetation and every mode of cultivation, excite the attention of those whose interest it is to know what can be got out of Mother Earth and by what means. The geologist marvels at the strange features of the barren lands which lie around Arcachon, and the marvellously distorted strata of the Pyrenees. The lover of English military glory may rejoice at the survivals of English domination of these fair provinces, and gaze on the redoubts, ruined bridges, and blackened walls which tell of Wellington's invasion of France at the end of the Peninsular War. The student of ethnology will find in the Basques a people more ancient than any inhabiting Europe. Does anyone exult in the glorious majesty of some huge mountain, let him wander amidst the Eastern Pyrenees and gaze on the hills hoary with perpetual snow, dressed around the base with most luxuriant vegetation. Does the fierce oncome of the mighty sea excite his fancy, let him stand on the rocky coast of Biarritz or St. Jean de Luz, and see the rolling billows of the Atlantic roaming in from the Bay of Biscay with a resistless force which hurls about vast rocks and mighty breakwaters as a child may play with shingle on a river's bank. If he cares to see Nature at her best a thriving and a happy people, and a land abounding in comfort as well as beauty, if he asks but to be allowed to *rest*, here he may spend days enjoying idleness, as he only does who regards it alike as a rest from labour and a preparation for more. The route chosen was by steamship *Liguria* from Liverpool to Bordeaux. The passage was not a pleasant one; rough sea, cold wind, and rain. Pauillac was reached in three days. On one side of the Garonne is the St. Emilion district, on the other that of Julien. Pauillac itself includes the vineyards of the Château Lafitte, which produces the costliest wine in the market. From Pauillac to Bordeaux is a run by train of about two hours. As the country is flat and there are no tunnels or bridges, the railway carriages carry two stories. Bordeaux is a large city, 242,000 inhabitants, and occupies a magnificent position on the Garonne. The year had been wonderfully prolific for wine, and the difficulty has been to obtain enough casks, the appeals for coopers in the windows on the quay being almost piteous. The lecturer next described some of the customs of the cask-ing fraternity, and the more important features of the city. Passing on to Arcachon, a seaside resort, some amusing peculiarities of the place were given. Lourdes was next visited and many pictures were shown, illustrating the buildings, the castle in which Napoleon imprisoned Lord Elgin in 1804, the upper and lower churches, general views of the town, &c. The number of pilgrims, said the lecturer, is immense. They arrive by thousands, sometimes even by tens of thousands, and every evening there is a procession. To see these thousands of persons—men, women, aged old souls with one foot in the grave, and children scarcely able to walk, gentle and simple—bearing shaded candles in their hands, winding up and around the paths on the hills and mountains, singing psalms and canticles, will produce a wondrous impression even on the most callous. Leaving Lourdes, Pau was next visited, and thence to the little seaside town of St. Jean de Luz, about twelve miles south of Biarritz, and a few miles from the Spanish frontier. The district between Bayonne and San Sebastian is still peopled by the Basques. In south-western France and north-western Spain they hold their ground with a tenacity which is one of the marvels of history. These Basques seem never to have been troubled by national aspirations. The French Basques are as loyally French as the Spanish Basques are loyally Spanish. Their ambition has ever been to manage locally their own affairs. They speak a language of their own, which is neither French or Spanish, nor a mixture of the two. It is a distinct language of quite another family. Their churches are all built of one type. The men occupy the tier gallery, the women the centre. Three peculiarities are very striking in these people. The Beret, or cap, something in shape like a Tam O'Shanter, the canvas shoes with soles of jute and bound round the calf with tapes, and the walking sticks made of medlar saplings. Hand ball is the national game, played in many different ways.

The lecture, which was well attended, was illustrated with upwards of sixty photographic lantern views, both the negatives and the lantern transparencies having been specially made by Mr. King for the purposes of this lecture, and from a technical point of view they were most satisfactory as displayed on the screen. Articles peculiar to the Basques were on the table for examination after the lecture, also a large number of stereographs to further illustrate the scenery and customs of the people.

At the conclusion of the lecture, the Chairman (Monsignor Williams), in felicitous terms, very cordially returned thanks to the lecturer.

Leeds Photographic Society.

At the meeting held on Thursday, 7th instant, the forty-second annual report was read. The Society was founded in 1853, and is, therefore, the oldest photographic society in the United Kingdom. The subjects brought before the Society at its meetings during the year have been of great interest and importance; indeed, in this matter, it is believed that the Society compares favourably with any in the provinces.

The following gentlemen were elected as committee for the ensuing year :—Messrs. Herbert Denison, J. H. Walker, H. P. Atkinson, B. A. Burrell, F.I.C., T. Butterworth. Godfrey Bingley, S. A. Warburton, H. P. London, Robert Steele, and Dr. Jacob.

The best thanks of the Society were given to Mr. W. A. M. Brown, for his gift of the year's photographic periodicals: also to Messrs. Pearson and Denham, for their gifts of books.

Mr. **Godfrey Bingley** exhibited a large number of his new lantern slides—views in Yorkshire, Scotland, West Somersetshire, North Devon, and Cornwall. His negatives were chiefly made on isochromatic plates and films, and showed fine results. He received the best thanks of the meeting.

Mr. **Denison** showed slides produced by the carbon process.

North Middlesex Photographic Society.

On the 11th inst., some time was consumed by discussions as to the exhibition just recently held, and also the nomination of the executive for the coming year.

The members who had received sample packets of the Barnet lantern plate brought their results for inspection and criticism, and a good opinion of the capabilities of the plate seemed, in most cases, to be formed.

The Thornton-Pickard tripod was also closely examined and criticised.

Information was asked, and a discussion took place, on the question of the possibility of producing pictures that should show unmistakably the effect of a bright, sunny day. Most members thought it a desirable attainment, and that it could be done, but seemed somewhat hazy as to how to work for the desired end.

Mr. **Avery** said he thought that by giving an exposure just slightly under the normal, developing with a developer very strong in pyro and weak in bromide and ammonia until the high-lights were fully developed, then washing that off and flooding with another developer, weak in pyro and strong in bromide and ammonia, until the detail was all out in the shadows, a negative could be got which, if printed in carbon, would certainly show sunshine.

Mr. **McIntosh** was in favour of rehalogenisation.

On Wednesday, the 20th inst., Mr. **Beadle** will treat on "Bromide Printing." Visitors are welcome.

Tooting Camera Club.

On the 7th inst., the above Club held their second of this season's "Ladies' Nights," devoted to the exhibition of slides by means of the optical lantern. Slides were shown by Messrs. Victor Robinson and A. H. Anderson, members; a picture by the latter gentleman, entitled "Tottie," a photograph of a pretty little girl three or four years old, whose facial expression was quite a study, was greatly admired. Some sixty slides, kindly lent by Mr. Dresser, were then exhibited. A set of comic slides by Messrs. Wilson & Co., of Aberdeen, lent by Mr. Nock, were also passed through the lantern. They were entitled "A Trip North," and were photographic reproductions of engravings representing the adventures of three friends in Scotland.

A vote of thanks to Mr. Anderson for his lantern, &c., and to Messrs. Robinson, Dresser, and Nock for slides, closed the evening.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

Mercury.—The bleaching of the image under mercurial intensification is due to the formation of silver chloride, and mercurous chloride (calomel). The salt is but sparingly soluble in water, and the crystals left at the bottom of your bottle after two months indicate that the solution above them is saturated. Add to the liquid sal ammoniac in powder (ammonium chloride), corresponding in weight to the mercury salt originally dissolved. This addition will increase its solubility, and the crystals will disappear.

J. (Cardiganshire).—We are sending you the manuscript by post, and shall be much obliged if you will acknowledge receipt. For the present we will retain the photographs for the reason explained in the letter which you will receive.

Merchants.—Gum Juniper is another name for the more familiar Sandarac. A smaller percentage than you name, say not more than 5 per cent., may be added to the varnish with advantage, and without softening it too much.

T. C.—There is a fee of sixpence for viewing Waltham Abbey but we do not know whether this covers the right to photograph in the building. A note of inquiry to precede your visit might save you disappointment.

Jumrood.—There are so many of these enamelled lined and grained papers now made for photo process drawing, that we cannot identify the one you name by your description of it. Corneilesen, of Great Queen Street, Long Acre, has several different kinds which you should examine.

B. J. M.—The blue process is more used by engineers for the multiplication of plans than by photographers. But you will find it very useful in making prints of various negatives, which you can paste into a book for ready reference. As development is brought about by simple washing in cold water, no chemicals are required, and the process is attractive if only for its simplicity. Messrs. Marion supply the paper ready prepared.

D. L. (Norwich).—The difficulty you complain of in obtaining sufficient density in copying line subjects is due to employing the wrong kind of plate. The brand named is admirable for rapid work, snap-shots, &c., but quite unsuitable for copying. Try Mawson's or Thomas's lantern plates, and use them for your negatives, giving a long exposure, and employ plenty of pyro in developing.

Mason.—The heat of the drying closet or box for gelatine plate-making should be under control, or the films will melt. The object to aim at is a regular supply of *dry* air, which finds an exit after passing the racked plates. If you look through the back annuals, especially those of about fifteen years back, you will find any number of patterns. In large factories it is the common practice to heat the drying rooms by steam pipes, and to draw off the moisture-laden air by revolving fans.

Dishes.—There is a short article in the present Year-Book by "M. A. C." on the construction of dishes for enlargement. We can thoroughly endorse the recommendation there made.

S. H.—If you refer to our advertisement pages you will be able to choose which firm will suit you.

The Photographic News
A Weekly Record of the Progress of Photography.

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1842. DECEMBER 22, 1893.

NOTES.

We have received a prospectus of the Spring Exhibition to be held at Liverpool during the months of February and March, 1894. This is not a strictly photographic exhibition, for it includes pictures in oil and water colours, arranged by the Liverpool Academy; examples of decorative and applied art, including art as applied to architecture, tapestry, embroidery, stone and wood carving, &c. Photographic art and appliances has a section to itself, and intending contributors should note that, in the case of pictures, no charge for space will be made, except in the case of professional photographers. We do not know why professionals should be thus mulcted in costs, but so it is. All particulars are obtainable from Mr. Charles Dyall, curator of the Walker Art Gallery, where the exhibition will be held.

The improvements designed by Messrs. Taylor, Taylor, & Hobson, of Leicester, in standard lens screws, as formulated by the Photographic Society of Great Britain, have already been recognised by the award of the Society's medal. But photographers generally are so conservative in their ways that many of them have not yet taken advantage of the great benefits which these improvements represent. To encourage these laggards, the Leicester firm have just issued a circular, in which they state that they have prepared machinery which will enable them to alter twenty thousand lenses before the spring of 1894. Those who wish to avail themselves of the arrangement should send for a copy of the circular without delay. The alteration is effected, as a general rule, in from two to three days from receipt of lenses.

It always conduces to good work to have all one's apparatus readily available, and nothing is more disappointing than to find at the moment when a certain lens is required that it will not fit, or will only fit with great difficulty into the camera flange. All this is obviated by the method adopted by Messrs. Taylor, Taylor, & Hobson. There is no wriggling about of the lens in order to find the point where the screw-thread starts from. This point is plainly marked on both lens and flange, the thread engages without difficulty, and three turns bring it home with the diaphragms uppermost. Many a good pictorial opportunity has been lost while the photographer has been struggling with recalcitrant screw-threads.

A new monthly photographic journal is announced, its title being *The Photogram*. It will be edited by Mr. Snowden Ward and Mrs. Ward.

Honorary secretaries of photographic societies often hold a position which does not raise feelings of envy, their self-imposed labours taking up much time and expenditure of energy. We are glad to see that the honorary secretary of the Newcastle Photographic Association, Mr. Edgar G. Lee, has received some recognition at the hands of the Society with which he has been connected for so many years. Mr. Lee has recently been presented with a purse of gold, a silver inkstand, and an album, on his retirement from the office which he has filled so well. We congratulate him and the Society upon this transaction.

We are informed by Messrs. Arthur Schwarz & Co., of Dashwood House, that they have taken Mr. Hermann Schwarz into partnership, and that the London branch of the business will, in future, be entirely under his supervision and management.

We have recently been examining under a magnifier the grain matt surface platina paper of Dr. A. Hesekiel

& Co., of Berlin, which is being introduced here by the above firm. The grain is that of very fine canvas, and it gives a velvety appearance to the picture printed upon it. But we do not think that Mr. Warnerke is right in suggesting that a picture so made and placed obliquely to the light will produce a network negative fit for process-work. Such a negative must consist of black dots of different sizes on a clear ground; but in these platina pictures there are delicate half-tones which it would be impossible to translate into black and white by such rough and ready means.

IN the course of a very interesting article in the *Daily Telegraph* regarding the Manchester Ship Canal, mention is made of the picturesque farm homesteads and trees which, in many places, border the mighty waterway. It is stated that Mr. E. Ward, a photographic artist, has, during the past five years, tramped every inch of the thirty-five miles intersected by the canal, with the sole object of preserving details of the country as it was. These photographic records of rural scenery—which must, within a very short time, be exchanged for bricks, mortar, and chimneys—will be of great interest and value.

THE two French naval officers who have been condemned to a long term of imprisonment in a German fortress—a punishment which, it may be mentioned, has no stigma attached to it—for making sketches and taking photographs of fortifications, &c., seem to have gone about their work in a singularly simple and incautious manner. Hiring an English yacht, they sailed from point to point sketching and photographing without any attempt at concealment, and, as a matter of course, they were arrested. It seems remarkable that they should not have adopted some form of disguised camera. The many ways in which the work could have been carried out must be obvious to the merest tyro in photography.

M. MEISENBACH, who, fifteen years ago, was an etcher and engraver in copper plates, was led by the competition of photogravure, which was ruining his business, into inventing the process which bears his name. He secured patents in fourteen European States, and made a fortune which would have been much larger had he taken out patents on the subsequent improvements in his invention. But he did not think it possible that any one would discover his method of photographing directly on the engraved plate, and neglected to patent this improvement, which stands in some other name. M. Meisenbach sold the business he established in London for £14,000, and has now practically retired.

AN example has been set by Lord Armstrong which might well be followed by other owners of notable picture galleries. According to the *British Lithographer* he allowed a local photographer to reproduce his pictures and offer them to the public, limiting the photographer only in the price at which they were to be sold, not wishing pictures, for which he had given £4,000, to be as common as the cheapest print or photograph, and requiring them to be done in the best way. The photographer agreed to these terms, and had them printed by the collotype process. *Apropos*, the *British Lithographer* holds out great hopes of a perfect chromo-collotype process which will be a great step in advance.

ONE of the most regrettable results of photographic piracy is that which has led Miss Kate Greenaway, the well-known artist, to abandon the charmingly quaint and dainty pictures of children with which her name is associated. If such a thing were possible, Miss Greenaway's work was even more popular in America than in England, and her books always commanded a brisk sale across the Atlantic. As soon, however, as the art of chromo-lithography improved in the States, piracy began, and unscrupulous publishers were able, with the assistance of photography, to produce facsimiles, and sold them at a much reduced price. The consequence may be imagined. The sale of the English editions, which, of course, alone benefited the artist, began to decline, and, at last, she had the mortification of seeing the American demand reduced to the score of copies required by the publishers for imitation.

MATTERS having reached this point, Miss Greenaway decided to abandon book illustration once and for all, and so, owing to the absence of any artistic copyright arrangement between the two countries, the art world will be deprived of any further examples in this direction from the artist's graceful pencil. Probably, however, Miss Greenaway will be tempted into more ambitious paths, and it is to be hoped that the forthcoming exhibition by the Fine Art Society of her water-colour drawings will encourage her so to do.

A PASSING word of regret and esteem should be said with regard to the death of Mr. Laycock, the Lancashire Dialect Poet. He was in every sense a born poet; for he had little education, and in his early life lived by hard manual labour. Such education as he obtained was in a Sunday-school; but though his writings show signs of want of finish, there is a homely pathos in them that appeals to the heart. For some years he has been a familiar figure at Blackpool, where he was in business as a photographer.—*Globe.*

COMPRESSED OXYGEN.

MR. MURRAY has issued the following addendum to Chapter III. of his recently published "Handbook on the Use of Compressed Oxygen":—

The final proofs of this book had not been many days in the hands of the printers before the long record of immunity from accident with gas cylinders was broken by the lamentable explosion at Bradford. I have re-read the chapter on Storage Cylinders in the light of this occurrence, and I am able to say, with some degree of satisfaction, that had the opportunity offered there is nothing in it which I would have been disposed to alter.

There is one point, however, on which I regret not having laid greater stress, and it is the question of annealing. I have referred to it, but only incidentally, and it is because I now feel the importance of emphasising it more strongly that I add this appendix to what I have already written on the subject.

After their final stage of manufacture, all cylinders, but more especially those of the solid-drawn type, have to be annealed in order to restore the metal to a proper state of ductility. To describe it briefly, this operation consists in heating the cylinders to a dull red heat in a suitable furnace, and then allowing them to cool slowly in another chamber. If a steel cylinder is not treated in this way the tensile strength of the metal is high, but its power of elongation is very slight—in other words, it is hard and comparatively brittle. On the other hand, a cylinder which has been annealed has its ultimate tensile strength somewhat reduced by the process, but its power of elongation—or ductility—is greatly increased. It requires no technical knowledge to understand which of these cylinders is the more suitable for transporting compressed gases, and although side issues have been raised, it is round this question of annealing that the moral of the Bradford accident turns.

Although in no way connected with the case, I was present at the Yorkshire College, through the courtesy of Professor Goodman, when various tests were made on the metal of the exploded cylinder. It is needless to describe here the nature of these tests. It is sufficient to state that they conclusively proved the accident to be due to the fact that the cylinder in question had escaped annealing at the hands of the makers. It had been hydraulicly tested by them, and by the Gas Compressing Company that filled it, but unfortunately it is possible for such a cylinder to withstand hydraulic test pressures, and yet to give way when suddenly subjected to a severe blow. This accident, in short, has revealed the fact that a cylinder may possess one defect which can escape detection under the present system of testing, and it points to the necessity for an additional safeguard.

It is paying a very poor compliment to the intelligence of makers, and others, who have been responsible for the development of this trade in cylinders, to infer from this one accident—as I am sorry to see certain correspondents in the newspapers are doing—that the business is being conducted recklessly and without due regard for public safety. To answer such charges one need only point to the fact that, in spite of the thousands of cylinders which have been circulating through the country for many years, this is the first case of the kind which has occurred. The importance of annealing has never been ignored by the compressing companies, but they have hitherto considered it a matter which might safely be left in the hands of the makers. The Bradford accident, however, shows that with the existing precautions it is possible for an unannealed, and consequently brittle, cylinder to be charged with gas, and the only sure way to prevent the recurrence of such a case is for the compressing companies to make it a rule to re-anneal all cylinders themselves. This is what the Brin's Oxygen Company—and I believe the other companies affiliated with it—have decided to do. They are adopting this course entirely in their own interests and that of the public, and with no desire to underrate the care with which cylinder manufacturers conduct their business. Their object is simply to trap unannealed cylinders—like the one in question—which may have escaped the vigilance of the makers, and thus ensure annealing before they are filled with gas. All cylinders now in use will be gradually treated in this way, with as little inconvenience and expense to the owner as possible, and re-annealing will henceforth be made a *sine quâ non* with all new cylinders. I believe that these precautions on the part of the compressing companies will meet the case, and that there need be no cause for anxiety on the part of cylinder users. It has been suggested that all cylinders should be subjected to a severe drop test when full of gas, and it has also been suggested that they should be well hammered when under the ordinary hydraulic test pressure. The latter proposal is practicable, and indeed is not infrequently adopted, but any violent blow is undesirable as a test for cylinders, for it is liable to crystallise or injure the metal where the impact occurs, and thus in a measure cause the very thing it is intended to detect. Undoubtedly the scientific and best way to deal with cylinders is first to *ensure* annealing, and then in my opinion the ordinary hydraulic tests I have described in Chapter III. are sufficient to detect any latent weakness a cylinder may possess.

There can be little doubt that the cylinder which exploded at Bradford was an isolated case of unannealing, for in addition to the experiments which have been made from time to time by the oxygen companies and others, in order to prove the safety of cylinders for the transport of gases, there is a great weight of similar evidence in the hitherto complete immunity from similar accidents.

The explosion has revealed an element of danger which should be removed by the adoption of the simple regulations I have mentioned above, so that to users of compressed gases it need cause no lasting anxiety. To the compressing companies it simply means the adoption of an additional safeguard, and if the reader is inclined to think these safeguards insufficient, or that the responsibilities of a compressing factory are not thoroughly appreciated, I would ask him to peruse the chapter on Storage Cylinders, to which these remarks are only supplementary.

Brin's Oxygen Co. KENNETH S. MURRAY.

A TOUR IN BELGIUM.

BY CECIL M. HEPWORTH.

V.—BRUGES.

A SHORT journey by rail from Ghent brought us to "the ancient town of Bruges." The first thing that strikes one on arrival here is the beauty of the railway station. It is more like an ecclesiastical building than a station—of Gothic architecture, walls inlaid with coloured tiles, and here and there small windows of coloured glass. The various waiting-rooms and ticket-offices are ornate with the same tasteful decoration, and the screech and roar of the engines sound out of place and sacrilegious in this curious building. The next thing that strikes one is the profusion of importunate hotel touts and guides who molest one on leaving the station. Three or four days' travelling in Belgium renders one quite prepared to fight one's way to an hotel, attended by crowds of screeching porters, but we were *not* prepared for the tremendous onslaught which we were obliged to sustain here. But we got clear at last, and, to avoid further annoyance, carried our luggage over to an hotel just opposite. After which we took our cameras out and commenced business.

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A BRUGES CANAL.

Opposite the railway station is a street which leads direct to the centre of the town, and thither we wended our way. A few yards brought us to the Cathedral, standing a little to the right of the street—an ancient brick building which has the appearance of being very modern, and is withal very ugly and uninteresting-looking. Continuing our way down the street, which gets narrower, more picturesque, and more ancient in style with every yard of the way, we passed a small space planted with trees, and containing a statue of the man who invented the decimal system. Of far more interest to us, however, was an old woman with a fruit-stall, whose tempting wares were, just as we approached, engaging the attention of two sisters of mercy. After cogitating for a few minutes, the heat of the weather and the coolness of the fruit prevailed, and they drew nigh with intent to purchase. But there is many a slip, &c., when ladies go shopping, as has been noticed by philosophers before, and these two nuns proved no exception. We waited, cameras in hand, for fully ten minutes before the fruit and money finally changed owners, but at last the three posed themselves as we desired—the old woman bending down to hand the peaches to her customers—and instantly click, click, click went our cameras, and then any disinterested person standing near might have observed three amateur photographers, each with a kodak and a contented smile, wending their way towards the market place, while two nuns depart in the opposite direction, also with contented smiles, but kodakless.

A couple of minutes more, and we were in the market place. The most noticeable feature here is, of course, the huge belfry, which rises from a quadrangular building called "Halles." The tower appears just twice as high as it ought to be; it seems awfully out of proportion to the building which serves as its base. It leans a little, too, and, viewed by itself, is certainly not beautiful. But when it is seen at the end of a narrow street of ancient gabled houses, or towering over the crumbling buildings adjacent to some quiet canal whose sluggish waters reflect its form, and add the beauty which it lacks when alone, one forms a very different opinion of it. Longfellow says of this building:

> " In the market-place of Bruges stands the Belfry old and
> brown,
> Thrice consumed and thrice rebuilded, still it watches o'er
> the town."

I wonder where he obtained his information. Baedeker doesn't mention its rebuilding, and the huge tower looks as if it had stood here for ages.

Continuing our walk, we took a narrow turning to the left of the "Halles," which brings us into the "Place du Bourg," a quiet little open space which teems with interest. Immediately to our right is a very curious old building, called the "Chapelle du Saint-Sang." This church forms one side of the quadrangle. It was in deep shadow at the time of our visit. At its side is the elegant Hotel de Ville, profusely decorated with statues of the Counts of Flanders. To obtain a view of the structure I climbed up one of the pillars of a building opposite with a happy result. My friends contented themselves with snapping at it from below, but their pictures show a decided want of the swing-back. Next to the Hotel de Ville, on the left, is a building called the "Maison de l'Aucien Greffe," "which is pretty, but I don't know what it means," as Gilbert says. It is a curious little structure, gilded all over, and is, I believe, now used as a court of law. There is a small archway between the building and Hotel de Ville, and walking through we find that both buildings back on to a canal, the first one we have seen in Bruges, though we soon made the acquaintance of a large number. Indeed, the town is divided into many islets by canals which intersect it in all directions, and it is from the numerous bridges over these canals that it takes its name. We walked along the bank of this canal, and every step revealed fresh delights in the shape of old houses, and quaint streets, or picturesque groups of natives One little bit on a bend of the canal specially attracted our attention. The quaint old houses and stunted shrubs, rising straight out of the murky water, would have formed a picture by themselves, but a peep of the belfry in the distance added a distinct charm, and we leant on the palings and enjoyed it thoroughly. A little further on is the Church of "Notre Dame," which is somewhat uninteresting, except for a queer little structure leaning against one of the walls, which seems to be decaying almost to nothing.

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MAISON DE L'ANCIEN GREFFE, BRUGES.

Opposite the church is the Hospital of Saint John, with a curious doorway, which we photographed; and then, threading our way through many intricate and tortuous back streets—absolute slums some of them were—we came to another canal, from the bridge of which we obtained a view of the three spires of Bruges. At one end of the bridge is a curious round tower, which I think would be interesting if one could find out anything at all about it, but *we* couldn't. The canals just here are so numerous as to be very bewildering, but it was somewhere along one of them that we came upon a fine old gate and drawbridge, which we "took." I am sure I should not be able to find my way to it again, and how we ever regained our hotel is a mystery. It took us about an hour, but the time passed pleasantly enough, for there was endless food for our cameras, and go where we would there were fresh surprises, fresh delights at every corner.

It was down (or up) one street, somewhere near the back of St. John's Hospital, that we suddenly chanced upon a merry group of lace-makers, laughing and chattering in their strange tongue, and busily clicking their spools of thread as the lace was slowly evolved under their deft fingers. They were sitting outside their houses on the shady side of the way—which was very natural—but with considerable gesticulation we persuaded them to take up a position on the sunny side, and they caught up their babies and ran laughing across the road, their mothers and grandmothers hobbling slowly after

AN OLD WATER-GATE, BRUGES.

them, so as to share in the fun. And great fun they all considered it, and strange to say they grouped themselves remarkably well. This was lucky; we could never have posed them ourselves, as we didn't know a single word of their language.

Space will not permit me to dwell upon the adventures of that afternoon. We wandered round again, and felt that we could spend a month here, and not have enough of the beauties of the place. We were in a photographer's paradise; the ancient city with its quaint gabled houses, relieved here and there by tall belfry or church spire, lying still as if half asleep in the sunlight. The lazy, dark-green canals, cutting up the town into little bits, appeared as if designed and placed here merely to look picturesque. The dark-coloured water as it gently lapped against the dank, green walls seemed to do so under protest, as if it were too much trouble even to ripple on such a lovely day. The dogs as they drew the milk carts up and down the old streets, and the milk-women in their many coloured dresses and large wooden sabots, seemed to be the only beings awake, and they, if we may judge by appearances, wished they were not.

I cannot call to mind anything more peaceful than the evening we spent here. Outside an hotel in the market-place, facing the belfry, were chairs on which we rested after our day's tramp, enjoying the delicious air and the quaint scene before us. The sun had set about an hour, leaving a faint ruddy glow in the west to mark the place of his departure. In the opposite direction the sky was overcast by masses of dark cloud, through which the brilliant harvest moon peeped every now and then, and shimmered for a moment on the huge belfry, making it look ghostly and unreal against the dark, banked-up sky behind it.

The silence was intense, broken only by the chimes, which ever and anon burst upon us with startling force. Occasionally we heard the distant clattering of sabots on the hard stone, coming down some side street; then their owner—some poor, tottering old woman, with her head tied up in a white shawl—would slowly cross the square, the sounds would gradually die out in the distance, and the silence be again complete. It must have been a night like this when Longfellow conceived his famous poem:—

"Silence, silence everywhere,
On the earth and in the air,
Save that footsteps here and there
Of some Burgher, home returning,
By the street lamps faintly burning,
For a moment woke the echoes
Of the ancient town of Bruges."

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LACE MAKERS.

The silence and quietude were, indeed, so intense that we could not help an uneasy presentiment that it was not long to last; distant lightning confirmed our forebodings, and a few large drops of rain, falling with loud plashes on the stones, warned us that it was time to turn in. But all seemed so strange in the quiet old-world city, that I, for one, could not sleep. The rumbling of distant thunder, the brilliant flashes of lightning, and, ringing out clear above all, the continual chiming of the bells, all conduced to a feeling of restlessness which had taken possession of me. The carillon of Bruges, which, by the way, is one of the finest in Belgium, is very beautiful, but rather too incessant. It seemed to me, as I lay there, that it rang for fourteen minutes every quarter of an hour. It also has a strange habit of striking the hour about an hour and a half in advance, which is rather puzzling.

The lightning grew brighter, and the thunder louder every minute, until it burst over the town with terrific fury, crashing and roaring among the buildings, till it seemed as if the house in which I rested must be the only one left standing. All the time those bells rang out with irrepressible cheeriness. Then the storm subsided into a distant growl, and at length died away as I dozed off to sleep.

* * *

TELE-PHOTOGRAPHY.

BY T. R. DALLMEYER.

THE first thing that strikes one in using a tele-photographic lens is that it is different in construction from ordinary lenses—*i.e.*, all ordinary lenses are fixed systems, having one definite equivalent focus, and form an image in one definite plane, upon which the focus for parallel rays is received. This plane is invariably constant for parallel rays, and when the lens receives parallel rays the extension of camera is at the shortest possible. This plane is, however, farther and farther removed from the lens when focussed for nearer objects, obeying the well-known law of conjugate foci applied to any definite fixed system of known focal length. This focal length is measured from one of the nodal or Gauss points contained in the lens system to the principal focal plane. As a matter of fact, there are *two* such points and planes for every system, and for any *fixed* system their position is readily and accurately defined, and they are unalterable. With the tele-photographic lens, however, the position of the plane upon which the focus is received is quite undefined; in fact any position may be chosen at which to place the focussing screen, either in close proximity to the lens itself or at any distance whatever farther away, focussing being performed by a proper adjustment between the separation of the positive and negative lenses of which the system is composed. The two nodal points or planes of both positive and negative systems are in themselves fixed and definite, but, when used together, forming the tele-photographic lens system. The separation between the nodal points in the two systems for the time being will determine the two final nodal and principal focal points of the entire system. This element of separation is most important in regulating the positions of the particular nodal point of the whole system from which the focus is measured and the principal focal plane for the time being. This separation is a very delicate adjustment, and by very slight alterations the focus is obtained upon any chosen plane of the focussing screen or plane.

The second initial difference that is noticeable in the use of this type of lens is that for equal extension of camera the image given is very much larger than that of a fixed system of an ordinary character. This is explained by the fact that the particular nodal point from which the focus is measured in ordinary types of lenses is contained within the lens mouth, whereas in tele-photo systems the particular one of the nodal points which determines the focus for the time being is situated considerably outside and beyond it. It is determined not only by separation of the individual lenses forming the system, but also upon the ratio of their foci and thicknesses.

The elements necessary for the exact determination of the capabilities of a tele-photographic system are:—

1. The focus of the positive system and the position of its nodal points or plane.

2. The focus of the negative system and the position of its nodal points.

3. The position of the nodal points of the entire system for a given separation of the above.

4. The intensity of the system for a given extension of camera.

5. The angle of view.

6. The plate that can be covered.

1. *The Focus of the Positive System.*—A great number of methods have been described from time to time, and none perhaps is simpler than choosing a known object sufficiently distant so that the rays may be considered parallel, and measuring the size of the image given, and comparing the size of the image with that given by a lens whose focus is known. The foci will then be proportional to the sizes of the images. If one has no lens of known focus to make such a comparison by, a very ready means is to obtain an image from a pinhole of a diameter calculated to give the best definition for an accurately measured extension of camera chosen. In practice I have found it useful to take an image given by a pinhole ten inches exactly from the plate as a gauge for all other measurements. The system ascribed to Grubb of measuring the focus by shifting a distant object from one side of the plate to the other over a measured distance, and drawing lines by the side of the base on a clean sheet of paper, is also very readily done for systems in which the nodal point is contained in the mount; but this is hardly applicable for tele-photographic systems.

Another method very frequently used is simple in language but rather tedious in operation—namely, by obtaining an image exactly the same size as the object, and taking one quarter the distance between the plane of the object and the plane of the image. This method has been considerably discounted of late, but really without good cause, inasmuch as the small error involved would be quite as small compared with that by the Grubb method, and it is possible that there may be no error at all. The focus determined may be slightly too long, slightly too short, or it may be absolutely exact; this will depend upon the forms, thicknesses, and separation of the elements composing the system, whereby the nodal points may cross one another to a slight extent, in which case the focus would be slightly too short. They may be separated a little, giving as a result the focus a little longer than it really is; or they might very feasibly absolutely coincide, in which case the focus so determined would be exact.

(To be continued.)

The Photographic News.
A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.
EDITED BY T. C. HEPWORTH, F.C.S.
FRIDAY, DECEMBER 22, 1893.

All Advertisements and communications relating to money matters or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
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ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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COMMERCIAL PHOTOGRAPHY.

THE busy photographer is often called upon to produce for trade purposes pictures of a kind that admit of but little artistic treatment. There is hardly any branch of commerce which does not either directly or indirectly give employment to the camera. If an illustrated catalogue is in contemplation, photographs form the basis of the pictures, perhaps merely as a guide to the wood-engraver, more often still dispensing with that individual and entirely supplanting him, for many catalogues are now illustrated throughout by collotypes, or process blocks. Such pictures are not accepted until an ordinary photographic proof from the negative has been submitted and approved, and the photographer will save both time and trouble if the first proofs sent in are attractive enough to pass muster. We know well enough that boots or hats are not calculated to arouse artistic enthusiasm in the breast of a man who is called upon to make a picture out of them, but still he can, by judicious arrangement and lighting, give a pleasing result where another who does not possess the faculty of taking pains will fail.

There is another class of commercial picture which is far more difficult to do well, and we see specimens of it exhibited as advertisements at many of our railway stations. We allude to the interior of workshops, machine shops, laundries, and the like, where the machinery has to be shown with the workpeople engaged in tending it. There are many difficulties in making satisfactory pictures of such subjects as these, and it will be useful if we note a few of the stumbling-blocks which are apt to beset the first attempts at such work. At the same time, it must be remembered that it is impossible to give any advice which will be available in all cases, for each subject must be governed in its treatment by a variety of conditions.

It need hardly be said that the easiest pictures of this description are those in which life is absent, and we will, therefore, suppose that the subject in hand is a workshop where special prominence must be given to certain machinery. Nearly all such places are badly lighted, and the gloom is accentuated by windows which carry on their panes the accumulated dust of ages; it would seem, indeed, that in some workshops dirty windows are regarded as sacred. But let not the photographer be in too great a hurry to call the window-cleaner, for it is generally to his interest that any windows which must be included in his contemplated picture shall be left dirty. In such a state they are, for reasons which will be immediately apparent, far less dangerous than if they better fulfilled their original purpose. Those at the back or sides of the camera—or more often at one side—may be cleaned, for upon them we rely for the proper lighting of the subject.

It is impossible to say which lens is the best to employ for such work. As a rule, the photographer is required to embrace in his picture as much of the subject before him as possible, and, as space is generally very limited, he is compelled to use a wide-angle lens stopped down, so as to get as much detail as possible. Of two things he must be very careful. The camera must be levelled with the greatest accuracy, so that all lines shall be correct, and the plates used must be of the non-halation kind, or they must be backed to make them so.

It has often been pointed out as a necessary thing in this class of work that bright metal-work must be painted over with flatted oil-colour. We have never found this to be necessary. Few machines have any large expanse of bright metal, and if they have, it is only at comparatively minute points that reflection becomes aggressive. A wipe with a piece of greasy cotton waste, always at hand in such places, will generally sufficiently dull such parts. But as a rule the high-lights on well-polished handles, taps, and screws give a sparkle to the picture which greatly increases its value. It has been the fashion for so many years to say that machinery requires painting before being photographed, that the tradition is continued without anyone taking the trouble to find out whether the statement be true or false. Possibly it was necessary in the old wet-plate days, it certainly is not now.

As already intimated, directly figures are introduced in these workshop pictures, trouble commences. The exposure is generally very long, and the average human being cannot stand in one position for more than, say, thirty seconds without swaying about in a manner terrible to behold. Such figures require careful grouping, and they must be engaged in their usual work, without any of that tiresome consciousness of being "taken" which is so commonly apparent in photographs. It is very unusual to find one dozen persons who can be made to stand or sit perfectly still for one minute; there is always one who will protest against undue detail by making his or her head fuzzy. Other difficulties crop up in these workshop pictures, some of which are nuisances inseparable from the particular occupation carried on. At ironworks, glare and smoke have to be reckoned with; at paper-mills there is ever present steam to bedew one's lens, and at many modern works the electric light is a source of trouble rather than a help. In short, this workshop photography is not easy to manage, and the man who can prove that he is master of it will not be idle.

BRISTOL INTERNATIONAL EXHIBITION.

First Notice.

ON Monday last this triennial photographic exhibition opened its doors, under the auspices of the Bristol and West of England Amateur Photographic Association. The Exhibition is held in the Galleries of the Academy of Arts, Queen's Road, Clifton, and the Council of the Association have every reason to feel proud of the result of their labours; and the labour of arranging an exhibition of this magnitude is by no means light, as everyone who has been engaged in such work must well know.

The Exhibition is divided into twenty-one classes, the first being the Champion Class, with a gold medal for the picture, or series of pictures, which, in the opinion of the judges, possesses the highest degree of merit, and the remaining classes share between them silver and bronze medals in profusion.

The Exhibition seems to have been called a triennial one on the *lucus a non lucendo* principle, for the idea that it occurs every three years is a fiction. The first was in 1880, the second in 1883, and here is the third ten years later. The excuse is—and a very good excuse too—that the Academy authorities to whom the Gallery belongs took it into their heads to hold a winter exhibition of oil paintings, and the photographers have hitherto been crowded out; but this year the exhibition of paintings has been given up, and photography once more reigns supreme.

The gallery, or, rather galleries, in which the Exhibition is held, afford ample space for the exhibits, and they have the further merit of having been designed for the hanging and exhibition of pictures. There is a good top light, the place is well warmed, and in every way the building is adapted for the purpose to which it is at present put, and the committee must be congratulated on having the show quite ready for the public by the advertised time of opening. As is well known this is not always the case, and the first day of a big exhibition too often resolves itself into a beggarly account of empty and full packing-cases.

There are four rooms here with their walls thickly covered with more pictures than could be crammed into the Salon and Pall Mall Exhibitions combined. And, although there are so many pictures, it must be confessed that the standard is high. There are, of course, some that one would not care to be presented with, as there are at all exhibitions, even those two London ones just named; but on the whole the quality is high. And in saying this we do not include the Champion Class, which is singularly rich in pictures which have already won honours at previous shows.

The judges could have no more difficult task imposed upon them than the proper bestowal of the gold medal in this Champion Class. The Judgment of Paris may not be named in the same breath, for Paris had only three rival beauties to deal with. The Bristol judges had eighty-one! and among them such good things as Burrows' Cornish mine pictures, so lately honoured at Pall Mall; Sutcliffe's "Stern Reality," Hollyer's wonderful "Story of Psyche," a photograph so faithful to the original bas-relief that some one here said that a plastic thing like that was out of place in a photographic exhibition; Treble's "Baby and Doll," and many other gems. The judges gave the gold medal to Mr. Warneuke's platinum seaside study, "Kelp Gathering"; while silver medals went to Mr. Wellington's "A still delight steals o'er the earth" and to a fine portrait by Mendelssohn, which, by accident or design, has the appearance of an etching.

There is one picture in this class by Fred. Boissonas which, we think, is worthy of special notice—namely, "Troglodytes," not only because it is an attractive picture, but also because the difficulties and trouble involved in getting the necessary figures and accessories together must have been enormous. The picture is, in spite of its title, evidently from nature. It represents a lake with a rocky shore and high cliffs, in which is a cave. Two savages clothed in skins are dragging a rudely-constructed boat up the shore, while two more have lighted a fire in the cave. The smoke struggles up the face of the cliff, and the sun's rays pierce it obliquely. An old man sits on the ground, watching the proceedings, and all round about him are the skulls and bones of animals which have furnished both food and clothing to these cave-dwellers. The whole thing is well done, in fact it could not be better done, it is so very real.

So much for the Champion Class. Class II., Landscapes, is a strong one naturally, for the average amateur takes perhaps fifty outdoor views for every portrait he attempts. Some fine mountain views by W. England at once seize one's attention here, but whether they are bromides or platinum we are unable to say, for they are rather high up. As a rule, the excellently compiled catalogue informs us on such points—initial letters against the titles of the pictures denoting the process by which they are produced—but here the information is lacking. There is on this wall a very fine platinum print—"On the Lledr"—by Roderick J. Fry, where mountain, wood, and rocky river bed make up a most harmonious whole. Here, too, is a little gem by J. B. B. Wellington—"An Evening on the Thames"—a combination of wood and water seen in the fast fading light of the sun, such as this worker is so fond of, and so successful in reproducing. We arrive here at the first medal picture, No. 8, "On the Derwent," by B. Lintott. It is very simple in composition—a few cattle standing idly by the river margin, with the Derbyshire hills in the distance, with just enough wind to ripple the water in light reflecting ridges. The warm brown of the carbon tissue chosen is suitable to the subject. No. 18 is a curious example of a badly chosen sky negative. The light, what there is of it, is supposed to come from the centre, but a flock of sheep is strongly lighted from one side. No. 50 is a frame containing three very charming little snow scenes, which most appropriately are due to Robert Frost. For these he has received a bronze medal. No. 53, a platinum print by J. Martyn, is worth notice for its very beautiful reflection in water of sunlit clouds, and it bears evidence that the effect is natural, and is not brought about by any combination of negatives. A good hoar-frost picture is No. 51, by E. Hawkins, but it suffers much from the way it is mounted. The mount is grey with a broad band of white next the picture, which, of course, robs the snow of its high-lights and is detrimental to the general effect. No. 54, "Noontide," by F. H. W. Benison—a study of sheep resting beneath trees—has much merit, but this again suffers from an unsuitable mount. Six very beautiful views along the streams of Normandy, by the Rev. Precentor Mann, have well earned a medal. These pictures represent tumble-down but extremly picturesque old buildings which border a canal or river, we know not which. A very good specimen of an Epping Forest picture is No. 61, by H. E. Farmer. It is printed on a very rough paper and is most effective. Mr. W. C. Hemmons has in this class three very fine pictures, "Lynmouth," "The Castle Rock, Lynton," and "An Old Farmstead." The brown tone, supported by oak mounts is here most pleasant to the eye. In No. 85 we have some more old Continental buildings by the Rev. Mr. Mann. No. 79 is a picture which is well-conceived, and might have been a success if its author, Mr. S. G. Payne, had only exercised a little more care; it is called "Sweethearts—Eventide," and represents a loving couple resting in a field. But the lady's dress stands out as a white patch, much lighter than the sky or any other portion of the picture. Mr. W. Moline has produced in No. 100 a snow-clad mountain scene in the Austrian Tyrol, which is far above the average of such things. It is spoilt to some extent by a mechanical spottiness of the sky, and possibly this is the reason why the judges have passed it over. It must be recorded that there is an aggravating *prettiness* about many of the pictures hung in this class, and this is accentuated in the case of one exhibitor, who has printed a fancy title on the mount of each of his productions in staring big letters of rustic design.

Class III. is also devoted to landscapes, but they must be under a certain size. Here the silver medal has been awarded to H. Smith for a Thames view—"Strand-on-the-Green"—which is by no means remarkable, and the bronze to a series of views by W. Norgrove. These rustic scenes are highly commendable, and we are glad that the judges have not passed them over. Some mountain views, very delicately printed, are by Mr. E. E. Barron, No. 202, and other views of the same kind, which are worthy of attention, are by the same hand (No. 249). The picture of the Matterhorn here, with its cloud banner in full glory, is most effective. We must reserve for another occasion a notice of the other pictures and of the apparatus. Appended is the judges' report, with the names of the prize-winners.

Judges' Report.

We report having made the following awards.

The exhibition is so exceptionally large, and the classes, with few exceptions, so strong, and of so high an average grade of quality, that the difficulties presenting themselves could only be overcome and justice done by the awarding of extra medals as indicated below:—

Class I.—Champion.—Gold Medal, 176, W. M. Warneuke. First Silver, 130, J. B. B. Wellington; 2nd Silver, 185, F. M. Sutcliffe; 3rd Silver, 308, H. P. Mendelssohn.

Class II.—Large Landscapes.—Silver, 8, B. Lintott. Bronze, 50, R. Frost; extra ditto, 55, Rev. Precentor Mann.

Class III.—Small Landscapes.—Silver, 201, Henry Smith. Bronze, 238 to 246, W. Norgrove.

Class IV.—Large Marine.—Silver, 813, B. Lintott. Bronze, 796, F. M. Sutcliffe.

Class V.—Small Marine.—Two Silver Medals to 292, H. O. Isaac; 280—286, and 297, H. W. Bennett.

Class VI.—Large Instantaneous.—No Silver awarded. Bronze, 524, E. Hawkins.

Class VII.—Small Instantaneous.—Silver, 528, P. Lewis. No Bronze.

Class VIII.—Interiors.—Silver, 627, H. W. Bennett. Bronze, 673 and 675, H. Baker. First extra ditto, 637, 655, and 656, S. G. Payne; 2nd ditto, 685, G. Hepworth.

Class IX.—Architecture.—No Silver awarded. Bronze, 581, W. C. Hemmons.

Class X.—Small Portraits.—Silver, 459, H. Baker. Bronze, 467, H. Baker.

Class XI.—Large Portraits.—Silver, 417, W. N. Warneuke. Bronze, 472 and 473, F. Hollyer.

Class XII.—Genre.—Silver, 355, Miss Farnsworth. Bronze, 358, F. M. Sutcliffe.

Class XIII.—Enlargements.—Silver, 850, H. Sandland. Bronze, 860, W. A. Cadby.

Class XIV.—Transparencies.—Silver, 874 and series, E. Brightman. No Bronze.

Class XV.—Stereoscopic Transparencies.—Silver, 919, J. H. Spencer. No Bronze.

Class XVI.—Lantern Slides.—Silver, 885, T. M. Brownrigg. Bronze, 891, G. Hawkins.

Class XVII.—Scientific.—Silver, 691, &c., W. J. Chadwick. No Bronze awarded.

Class XVIII.—Botanical.—No Silver awarded. Bronze, 564, J. T. Hopwood.

Class XIX.—Zoological.—Silver, 730, H. Sandland. No Bronze.

Class XX.—Local Survey.—Silver, 770 to 777, E. Brightman. Bronze, 763, W. C. Hemmons.

Class XXI.—General.—Silver, "Frena" Camera. Bronze, "Allendale" Slide Changer. Bronze, 1,012, F. Hollyer. Bronze, 334 (Flash-light photographs in portrait gallery), F. Bromhead.

(Signed) Valentine Blanchard.
Bernard Alfieri.
Payne Jennings.
S. P. Jackson.
H. A. Hood Daniel.

SLOW AND QUICK PLATES.

AN unusually large company assembled at the Camera Club last week (Thursday) to hear the President, Captain Abney, discourse on instantaneous and slow plate photography from an experimental point of view. The chair was filled by Professor Armstrong.

Captain Abney commenced by saying that he knew that curves and mathematical formulæ were not particularly esteemed by the members generally, and he would promise, in the course of his remarks, to be as sparing of them as possible. He should be obliged to trouble them with one or two curves, but beyond these and a little simple arithmetic they had little to fear. There were two methods of testing the speed of a plate, one by means of a series of exposures, and the other by giving one exposure to light of varying intensity. It is obvious that this is the plan we adopt when we use a camera, and it is certainly the better way. It was once thought that one method was as good as the other, but this notion was upset by the experiments which he had described some time ago before the Photographic Congress. In these experiments he used an amyl-acetate lamp, the light value of which was half that of a standard candle, and different intensities were secured by altering the distance of the light from the plate under examination, and obeying the ordinary law of inverse squares. With these feeble intensities slow plates showed certain peculiarities. Although the product of light and intensity were the same in all cases, the deposit on the plate was always less the feebler the intensity of the light. Another point to be noted is this. If a slow plate be exposed with Warnerke's sensitometer, say two feet, and twelve feet from the light—of course in the latter case giving a corresponding increase of time—the speed registered will not be concordant in both cases. Again, in an instantaneous exposure you can get a properly exposed picture in, say, $\frac{1}{50}$ of a second; on a dull day the same picture will need, say, five seconds. The one exposure is then 250 times less rapid than the other. But you will not get the same results when testing plates in the laboratory. A number of slides were then exhibited showing the marked differences in density exhibited by slow and quick plates, and the variations produced by using the electric light as an illuminant or the amyl-acetate lamp, the latter at a quarter inch from the plate giving the same intensity as the former at a distance of eight feet. In the case of a Barnet ordinary plate the gradations were not nearly so abrupt when the electric arc was used as when the amyl-acetate lamp was employed. A very curious thing next came under review, and that was found when an Edwards plate was compared with a Barnet. When tested with the amyl-acetate lamp the Edwards plate was much slower than the Barnet, but with the electric light the Barnet was the slower. We evidently want to know a great deal more about plates before we can say which is the most rapid, for it is evident that results are governed by the nature of the light employed in testing. It may be said that perhaps there may be some error in the scale employed, but the same results are recorded when a Spurge sensitometer is used. It has often been noticed that the speed of a plate when tested in the camera differs from the speed recorded by the Warnerke sensitometer. These notes represent but an extension of what has already been published, and are confirmatory, but there are some points which require further investigation.

Such is a bare outline of a thoughtful paper which evidently aroused much interest among the auditors. It was described by the Chairman as being most important to the scientific photographer. Mr. Warnerke endorsed the Chairman's remarks, and considered that the paper must alter our ideas regarding the exposure necessary for different diaphragms. He then drew two curves on the blackboard to represent the different effect produced by the electric light and the amyl-acetate lamp, and then drawing a dotted curve between the two, asked if some form of light could not be adopted in such experiments to hit the happy medium. What would Captain Abney suggest for future use so as to get better results? To which the lecturer answered that no dependence could be placed on any particular plate until it had been tried in various ways, and he cited what had occurred in the case of the Barnet and Edwards plates already referred to. Mr. Chapman Jones thought that these experiments taught one lesson, and that was that we ought to be tolerant of the opinion of the rule-of-thumb men. The unscientific photographer had always advocated the testing of a plate by taking a negative with it in the camera, and it seemed that he was right. He also thought that the results obtained by Captain Abney tended to show that exposure is physical rather than chemical. Mr. Elder thought that the problem before them was hopelessly difficult. He thought that laboratory tests were almost valueless, and that the rule-of-thumb camera method was best. In laboratory tests things were constantly cropping up which were almost impossible to explain. He certainly had to alter opinions he had formed some time ago, and there was yet much work to be done before we can say what is the action of light on a plate. In experimenting with Spurge's sensitometer he had proved that the effect of a bright light for a short period was greater than that of a dull light for a correspondingly longer period. The more one works at the question the more chaotic does it seem to become. Mr. Spurge was very glad to hear Captain Abney elucidate points which had puzzled him greatly when first making his sensitometer. Mr. Dallmeyer asked if these results would be as absolute if experiments were made with a plate coated in darkness, and he also asked whether the spectrum from the two kinds of lamps would not help forward the work. Mr. Varley wanted to know whether the rate of penetrability of the rays from the two light sources through the air would not account for the difference of results. Mr. Davison hoped that Captain Abney would not suggest any new kind of standard light. He preferred to be left in the dark. He had recently been making some enlarged negatives, and he found it impossible to get good gradations with slow plates. He thought it a mistake to use slow plates for such a purpose. Mr. Humphery thought that the results obtained in the experiments were due to inertia. A certain amount of light force must be got before there was any apparent action—just as a man must give an initial push to a railway waggon before it will move. Mr. Lambert said that in making pinhole exposures he had to increase them far more than theory demanded. When he first took up photography, he worked with Burton's tables, keeping records of every exposure made; but in a short time he had made so many corrections in the tables that but little of the original remained. In making photographs of dark interiors, and using the smaller stops of his lens, the time had to be enormously prolonged. The Chairman looked upon a gelatine plate as a medium of extraordinary complexity, and the differences noted were no doubt due to variations in the components of the emulsion. These experiments would be a matter of supreme importance to the astronomers who were now estimating star magnitudes by measurement of photographs. Their calculations would be now all upset.

In his reply, Captain Abney said that he should prefer to make a camera test of a plate on a grey day—something midway between sunshine and the fog which Mr. Davison loved. The rule-of-thumb men may be right after all. There is an old belief that the sun acting on a burning fire will put it out. The scientific man says this is all nonsense; but the former view may be right after all. It was gratifying to find that Mr. Elder's sensitometer experiments confirm what he had done. This kind of work should not be done by one man, but by a dozen. One is liable to error; but he had been very careful, and he thought that at any rate his results were qualitatively accurate. Mr. Spurge had just said that there was a kind of residual error which made the construction of his sensitometer very difficult. He owed a deep debt of gratitude to Mr. Spurge for this instrument. It was beautifully made, and most accurate. The question of a standard light presented so many difficulties that at present he would abstain from saying anything about it. He could not answer Mr. Dallmeyer's question as to the behaviour of a plate coated in absolute darkness, for he had never tried one; but he could say that the plates he had worked with showed no trace of light on development. With regard to the spectrum, the maximum of the electric light did not occupy the same place as the maximum of the amyl lamp; but this matter need not be regarded, for we are now dealing with the total energy of light. He had used all kinds of coloured screens without any variation of the results recorded. Mr. Davison was right in employing a rapid plate for an enlarged negative. The light is scattered by the negative; the more so when the deposit is thick. This is why the rule-of-thumb men recommend, for enlarging, a thin negative and a bright light. He had not confined his experiments to gelatine plates, but had also used wet plates and collodio-bromide, and they gave the same results, but in a much more strongly-marked manner. He thought that the discrepancies sometimes shown between the photographs obtained by our astronomers and those of other countries might be accounted for by the difference in the plates which each employed.

A hearty vote of thanks to Captain Abney closed the proceedings.

THE SPEED OF PLATES: A CRITICISM AND A REPLY.*

BY H. M. ELDER, M.A.

(*Continued from page* 791.)

Loss of Exposures.

THE four plates measured by the writer are numbered 13, 14, 15, 16 (*see* Fig. 2). No. 13 is a very slow plate, of well known make; No. 14 one of the fastest plates in the market; Nos. 15 and 16 are respectively a slow and a rapid plate, by the same makers, and are also well-known plates. These were all exposed for the same time in a Spurge's sensitometer and developed in the same bath, a ferrous oxalate developer being used, so that the experiments are strictly comparable. The relative speeds, as measured by the two methods are given in the following table:—

	Plate.			
	13	14	15	16
Abney	1	3½	2¼	3
Hurter and Driffield	1	9¾	5½	6

In this table the slowest plate is taken to have a speed of unity, and the others are compared with it. Thus, if an exposure of ten seconds is the least which will produce a negative with plate No. 13, according to Captain Abney's method, three is the minimum exposure with plate No. 14;

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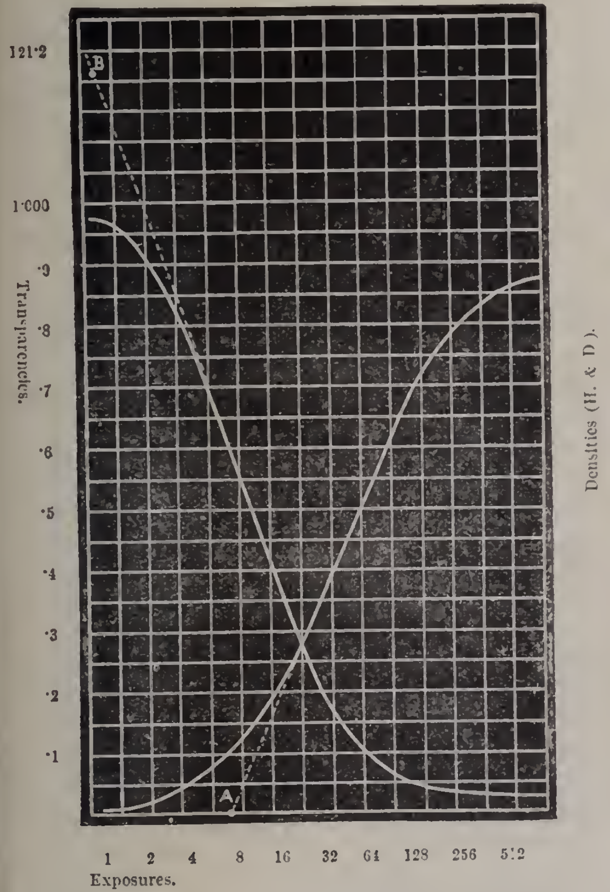
* Paper read on Thursday, November 23rd, at the Camera Club. Communicated by the Author.

and, according to Messrs Hurter and Driffield, one only will be required.

It should be noted that in the field a slow plate is apt to appear much slower than it really is, since there is so great latitude of exposure with it. It has been said of plates of the same make as No. 13 that it is impossible by any reasonable exposure to over-expose them. Now the writer has never compared plates Nos. 13 and 14 in the field, but he has often used No. 13 and another plate very similar to No. 14, and of about the same speed, together, and it has been his habit to give No. 13 about five or six times the exposure of the faster one. Allowing for the tendency to fully expose a slow plate, it will be seen that for practical purposes Abney's number is probably nearer the mark than Hurter and Driffield's. This is not, however, convincing evidence, and must be taken for what it is worth. The curves of these plates are shown in Fig. 2. The curves marked 13, &c., are plotted by Abney's method. Those marked 13A by Hurter and Driffield's. The numbers and arrows at the top of the plate show the positions of the *slowness* points by Abney's method, those at the bottom the corresponding positions by Hurter and Driffield.

Fig. 1.



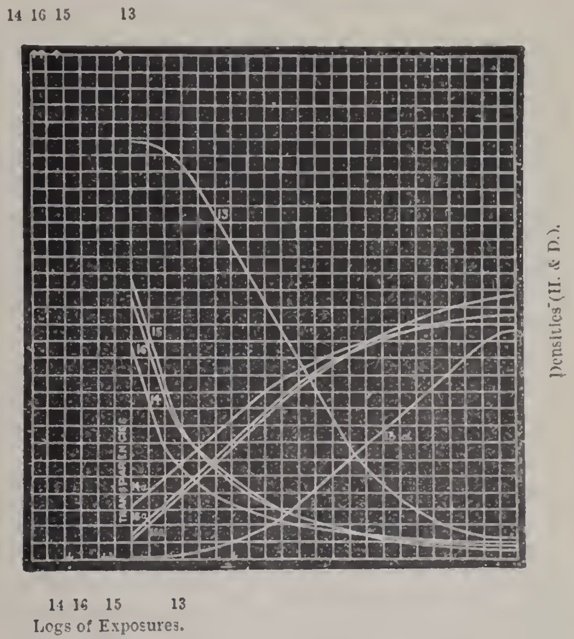
The three plates measured by Messrs. Hurter and Driffield are Expts. 21 and 22 in their paper, and the chloro-bromide plate mentioned by Dr. Hurter in his criticism on Capt. Abney's paper, made at the Camera Club, and reported in the Club *Journal* for July, 1893. Taking the speed of the chloro-bromide plate as unity we get the following table of speeds :—

	Chloro-bromide plate.	Expt. 21.	Expt. 22.
Abney	1	... 5·7	9·1
Hurter and Driffield	1	... 2	1·6

Here is a remarkable thing! Experiment 22 is a denser and apparently more fully exposed plate than experiment 21, throughout the first few exposures of the series, and Abney's method brings it out the faster. Yet Hurter and Driffield's method inverts this order, although each of the whole series of densities in experiment 22 is greater than the nearest corresponding density in experiment 21.

One curious instance of a plate exposed and developed by Abney may be cited. This plate was cut in half after exposure, and the halves developed with different developers—viz., an eikonogen developer and one made up of ferrous citro-oxalate. On plotting Abney's measurements, it is found that, while according to his method of estimating the speed, the eikonogen developed half was faster than the other in the ratio of 1·8 to 1 ; according to the other method the ratio became 1·25 to 1. This case, however, was affected by the same difficulty as was the case of the lantern plate and wet plate, since the measurements were not carried far enough, and did not include parts of sufficient opacity to draw the whole of the nearly straight portion of Hurter and Driffield's curve.

Fig. 2.



Sufficient has already been said to show that it is impossible to give in one term a number representing the sensitiveness of a photographic plate with any degree of accuracy ; but that for rough purposes the method propounded by Abney supplies a number that more nearly represents this quantity, as required in the practice of most photographers, than that of Hurter and Driffield. It now remains to take up in detail some of the criticisms and strictures passed by Dr. Hurter at the Camera Club on this method, and see with what justice they were applied.

In the first place, Dr. Hurter proceeded to defend the assumption on which his larger formula was based. It has, however, been pointed out, by the writer and others, that this assumption depended on an experiment that was, to say the least, equivocal, and certainly not one on which to base so far-reaching a theory.*

He then proceeds to fall foul of the "law of error" formula, and here it would seem that Dr. Hurter misses the whole point and use of an approximate formula. It is claimed for the law of error formula that it gives an expression which fits the curve actually drawn from measurements on the plate, through that range of transparencies which is of use to the photographer. Dr. Hurter complains that, plotted according to his method, the law of error formula gives a parabola. This is certainly no valid objection, for can a parabola or a straight line be drawn through the greater number of fixed points? If, as is acknowledged, the parabola, is it not true that a parabola can be made to fit closer to a given curve than a straight line? Dr. Hurter's straight line gives a point in the diagram which, according to him, fixes the speed of a plate. Abney's parabola also gives a point (its vertex) which depends solely on the plate and its treatment, and may be made just as well as, and probably better than, any other to represent the speed of the plate. It has already been shown that Abney's curve deduces the number representing the speed from a practically useful set of exposures, while Hurter and Driffield's does not.

(*To be continued.*)

PATENT INTELLIGENCE.

Compiled for the PHOTOGRAPHIC NEWS *by the Patent Department of Messrs. Herbert Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

23,469. JOHN MATTHEW YOUNG, 154, St. Vincent Street, Glasgow, "An Improved Method of Preserving Drawings, Etchings, Chromos, Photographs, and such like which are framed, from dust or damp."—*December 6th*, 1893.

23,490. ARCHIBALD CAMPBELL PONTON, 77, Chancery Lane, London, "Improvements in Photography and in Photographic Cameras."—*December 6th*, 1893.

23,607. WILLIAM FREDERIC BUTCHER, Tranquil Vale, Blackheath. London, "Tinted or Coloured Covers for Photographic Transparencies."—*December 8th*, 1893.

23,642. GEORGE FRANCIS HORNE, 21, St. John's Square, Clerkenwell, London, "Improvements in Photographic Dark Slides."—*December 8th*, 1893.

23,670. BIRT ACRES, 28, Southampton Buildings, Chancery Lane, London, "Apparatus for Exposing Successive Photographic Plates, Magic Lantern and other Slides."—*December 8th*, 1893.

PROCEEDINGS OF SOCIETIES.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

December 14th.—Mr. A. COWAN in the Chair.

MR. J. E. HODD asked whether it was considered important that the bichromate bath for sensitising carbon tissue should not be in an acid state.

Mr. W. E. DEBENHAM replied that it should not be more acid than was due to the bichromate itself. Ammonia might be added freely, as it evaporated during the drying of the tissue. He did not use ammonia himself, and he noted that, in the more recent instructions, given with Husnik's photo-litho transfer paper, the directions for the addition of ammonia had been altered into "Use no ammonia."

Mr. P. EVERITT thought there was less tint left on the margins of a carbon print when ammonia was used with the bichromate. He intended to experiment on the matter, and report to a future meeting.

Mr. T. E. FRESHWATER showed some limes for the lantern prepared by Messrs. Newton. They were turned true, and, owing to some chemical addition, it was claimed that they were not much influenced by the weather.

Being lantern night, a number of members' slides were shown, as well as a large number of views of Cornish tin mines, produced by Mr. Burrows.

It was announced that, on January 4th, Mr. E. HOWARD FARMER will read a paper on Hurter and Driffield's method of speed determination.

CENTRAL PHOTOGRAPHIC CLUB.

ON Friday evening last, when Mr. JOHN HOWSON gave his first demonstration of the working of the new matt-surface paper, now being issued by the Britannia Works Company, the large meeting room was crowded to its utmost extent. The chair was occupied by Mr. F. W. EDWARDS, President of the South London Photographic Society.

Mr. HOWSON said that ever since the introduction of printing-out papers the Ilford Company had under consideration the placing of a matt-surface gelatine paper upon the market.

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* The experiment is described at p. 11 of Hurter and Driffield's "Photo-Chemical Investigations" in the following words:—"The co-efficient of absortion, κ has been assumed by us to have the same value both for the altered and the unaltered silver bromide. We have, however, experimentally ascertained that this is a fact. It can easily be proved photographically. If behind a plate one portion of which has been already exposed so as to yield maximum density, the other portion having received no exposure at all, a very sensitive plate is placed, and if now a suitable exposure be given, it will, on development, be found that the shielded plate has uniform density all over." This is certainly an interesting observation, and if true, at first sight, seems to bear out the assumption based upon it by Hurter and Driffield. Still it is open to many objections. In the first place it proves absolutely nothing about the light absorbed by the altered and unaltered silver bromide, for, assuming this to be opaque, no alteration in composition, or constitution, or colour, would affect the light transmitted by it, the co-efficient of reflection might alone be altered to compensate for the alteration in the co-efficient of absorption. Again, if it be not absolutely opaque, there is no reason to suppose that the transparency is necessarily altered by the effect of the light upon it. Even if it be altered, the alteration is certainly small, and since the unexposed portion is necessarily exposed during the experiment, the difference in the effect of the light transmitted by the two halves may very easily be so small as to elude notice, even when careful measurements are made. In fact, the experiment can in no sense be called a crucial one.

During the last twenty years matt-surface papers of one sort and another have been sold; but hitherto they have been a failure in some way or another. In these days it is necessary that paper should keep good indefinitely, otherwise the photographic public will not use it. Plain salted paper does not show the fine detail of the negative, and lacks gradation.

The keeping qualities of printing-out papers, which are admitted on all hands, are embodied in the new paper. The detail and gradation of the negative are truly rendered, as would be seen from an inspection of the specimens in the room.

The tones obtainable are warm blacks, restful to the eyes; photographic purples, warm browns, and sepia, so that we have a point on the artistic side—surface and colour.

The practical aspects of the question are anything but small. The matt-surface paper, according to his experience, is suitable for a wider range and class of negatives than the glassy. Both matt-surface and glossy prints can be printed, toned, and fixed together. Prints are of better value to the public generally, and the professionals should, in these hard times, take advantage of this, and not cut prices.

Printing is done in the usual way, and requires no special precautions to be taken. Too much stress cannot be laid on the thorough washing before toning. There is no tendency of the paper to curl. Although the paper is thin, it is exceedingly tough. It is one especially made for the purpose. There is no liability to frill or blister. After washing, prints are put into the alum bath and then washed. The use of the alum bath enables spotting to be done with greater ease. Toning proceeds so rapidly in a bath freshly made up that the prints must be kept moving. A good plan is to keep the sulphocyanide of ammonium in solution of a known strength, and add water to it. A ¼ oz. of the solution he had contained thirty grains of sulphocyanide.

The toning bath is composed of

Water	32 oz.
Sulphocyanide of ammonia	60 grs.
Chloride of gold	4 grs.

As soon as the redness caused by adding the gold disappears, the bath is ready for use. Tone the darkest prints first. Sepia brown tones are produced by short toning in a bath strong in gold. Warm browns by long toning in a bath weak in gold, or one which has been used two or three times. Black prints are obtained from strong negatives, and by toning them in a bath strong in gold. Toning is stopped by placing the prints in water. Always use fresh hypo for fixing; it is "abominably cheap," so the dealers say. Prolonged fixation reduces over-printed prints. The colour of the prints when they are withdrawn from the toning bath will be the colour they will be when completed. In the fixing bath they become warmer in colour.

The Chairman said for some years he had been using platinum paper solely, but after a trial of the new paper he should certainly adopt it in certain cases.

Mr. E. J. Wall said the demonstrator had overlooked one of the greatest advantages—namely, the ease with which it could be mounted. Starch paste could be used, and the prints rubbed down with the hand or handkerchief. By the use of platinum toning bath he had obtained rich brown and sepias.

Mr. B. J. Edwards referred to the use of the lime bath (which the lecturer did not recommend) for obtaining black tones, which he considered more permanent than the browns.

Mr. Howson, in replying, said that in all platinum toned prints which he had seen there was a degradation of whites. He had not been able to obtain an engraving black with the new paper.

Prints by the following gentlemen were shown:—Messrs. West & Son, Southsea; Mr. Thomas Fall, Baker Street; Mr. Crook, Edinburgh; Mr. Valentine, Dundee; Mr. F. P. Cembrano, jun.; Mr. F. W. Edwards, Peckham; Mr. Byrne, Richmond; Mr. Harold Baker, Birmingham; Mr. J. A. Hodges, West London Photographic Society; Mr. Sutcliffe, Whitby; and Mr. Golledge.

On Friday evening next, Mr. J. Sterry, of Redhill, will read a paper on Hurter and Driffield's experiments without the use of mathematics. Messrs. Cadett, Cowan, and Edwards are expected to take part in the discussion.

The Committee have decided to intersperse between the "one-man shows" collective exhibits by invitation by various well-known photographers and photographic societies.

Putney Photographic Society.

Ordinary Meeting, December 14th, held at the Society's Rooms, Charlwood Road.—Dr. W. J. Sheppard in the Chair.

A good muster of members and their friends had assembled to see the *Amateur Photographer* Prize Slides being passed through the lantern. The slides were of uniformly fine quality, and were much appreciated by those present. The lantern, kindly lent by the Chairman, was ably manipulated by Mr. William Martin, the Hon. Treasurer of the Society. The Society having bought an oxygen cylinder, with fittings, these were, after being fully tested by the Brin Oxygen Co., tried for the first time with satisfactory results. It may be noted that no regulator was used, the fine adjustment screw valve proving amply sufficient to regulate the flow of the oxygen with the greatest nicety.

Brixton and Clapham Camera Club.

Tuesday, December 5th, 1893.—Open Lantern Evening.—Dr. J. Reynolds, F.R.G.S., in the Chair.

Several slides by members were passed through the Club lantern, after which a set of slides, contributed by the Southsea Amateur Photographic Society for circulation by the Photographic Society of Great Britain, were exhibited. The evening was a very enjoyable one and the members and their friends went home very satisfied with the entertainment which had been provided for them.

Hackney Photographic Society.

December 12th.—Mr. Robert Beckett in the Chair.

Mr. Grant asked for information regarding the Hill-Norris plates; he found that unless you gave exact exposure it was impossible to obtain density.

The Chairman also agreed with this remark and suggested redevelopment, as an improvement, as a better result could always be obtained than by developing all at once. The soluble salts could be easily removed from the plates in a very little while. The plates were very easily dried.

Mr. Smith asked if isochromatic plates were beneficial for exposures upon winter scenery. Wherever there is a tendency to yellow light these plates were very good. The plates also recommended were those of medium quickness, with a thickly-coated emulsion.

Mr. LEBLANC, of Messrs. A. Schwarz & Co., then proceeded with a demonstration upon Dr. Andresen's developing, fixing, and toning cartridges, and some good results were obtained. They were strongly advocated for tourists, &c., who wished to test their exposures whilst on journey, as they were so easy to manipulate and saved taking a quantity of chemicals, &c., on tour. An advantage claimed for the fixing cartridges was that they could be used over and over again, and therefore a decided advantage over ordinary hypo. Glycin, as a developer, was strongly urged for use by beginners, as it seemed to give considerable latitude of exposure.

A vote of thanks to the demonstrator closed the evening.

ASHTON-UNDER-LYNE PHOTOGRAPHIC SOCIETY.

ON Thursday evening, December 14th, at the above Society's Rooms, a very interesting and instructive address was given on the subject of "Photographic Chemistry," by Mr. STEPHEN SHARP, chemist.

There was a very good attendance, and Mr. GREENWOOD occupied the chair.

Mr. SHARP illustrated his subject by giving numerous tests of the various chemicals used in photography, and showed the members some simple methods of judging the purity of them.

The address was listened to very attentively, and a hearty vote of thanks was given to him at the close.

DUNDEE AND EAST OF SCOTLAND PHOTOGRAPHIC ASSOCIATION.

December 7th.—Mr. J. D. COX in the Chair.

A LANTERN-SLIDE competition took place, for which ten members entered, each sending in six landscape views. The prizes were adjudged by the meeting as follows:—(1) Mr. D. Ireland, Broughty Ferry; (2) Mr. V. C. Baird, Broughty Ferry; (3) the Rev. E. J. Gough, Dundee.

Mr. MURRAY FEATHERS gave a lecture on the "Capabilities of the Camera." Some excellent pictures, illustrative of the different branches of the photographer's art, representing statuary, figures, animals, landscapes, stellar photography, &c., were shown on the screen. Among the most noteworthy of the photographs were representations of the statuary in Dundee Museum, taken by the electric light, and an interesting collection of views of the Chicago Exhibition. Mr. Feathers gave racy descriptions of the different slides.

DERBY PHOTOGRAPHIC SOCIETY.

THE usual monthly meeting was held, on Wednesday evening last, at Smith's Restaurant, Victoria Street, Mr. R. KEENE presiding.

It having been suggested to hold an exhibition of photographs in 1894, similar to that held at the commencement of 1893, this question was first brought under consideration to ascertain whether sufficient new work could be obtained from the members to make the exhibition a successful one. It was arranged that it be made a bi-annual one, so that the next will take place early in 1895. It was also agreed to hold an exhibition of lantern slides (made by the members) early in 1894, to which all interested in photography could be invited. The rules of the Society were also revised, and the night of meeting altered from the second to the third Tuesday in each month, October to April inclusive, out-door meetings to be held from May to September. It was decided to hold the annual dinner early in January next.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

H. G. T. (Bergen).—1. We should advise you to use the process with which you are best acquainted for both transparency and negative. We should ourselves prefer the carbon process for the transparency, and the wet-plate process for the collodion reproduced negative. 2. Most photographers in a large way of business will duplicate their negatives when any great call is made upon them. 3. The collodio-bromide process gives the best results, but if you are used to the wet process you will do very well with that. Reduce from ordinary negatives.

M. McC. (Dublin).—There are scattered papers on the subject in various annuals, but your best course will be to get a little book published by Gauthier-Villars, Quai des Grands-Augustines, 55, Paris. Its title is "Héliographie Vitrifiable," by Geymet.

CYCLOPS.—The secret of avoiding the disagreeable green tone so common in bromide paper enlarging is to use as little bromide in the developer as possible, to time the exposure so that development is not protracted, and to carry through all the operations with reasonable speed. The acetic acid solution after development should be poured on to the paper before washing, and should immediately be poured off again.

A. C. P.—The crystals have suffered from exposure to air; reject them and obtain a new sample. The sulph*ite* has effloresced into sulph*ate*, which is a powerful restrainer.

J. K.—Your letter bears no address, or we should have written to you by post. The albumen process is still worked in this country for the production of lantern slides, and it has many advantages, chief among which is the hardness of the film and indestructibility of the image; but, on the whole, you will do better with collodio-bromide. We can find a teacher for you, we believe.

J. MOORE.—The superiority of the process blocks mentioned is due, in the first place, to the fact that the producer has made them direct from the original negative. It is generally the custom to make the negative required from a silver print, and loss of effect is the result. Shall be glad to see the specimens, if you will kindly forward them.

P. C.—The most perfect form of light for developing large plates is the incandescent electric lamp, furnished with a conical shade, and with its opening filled in with orange paper. The lamp should be capable of being lowered when required. A regenerating gas burner can be made to fulfil the same office somewhat less perfectly.

G. M.—The lens with which your carte or cabinet photograph was taken can be used to enlarge it. If, as we understand you, your intention is to get an enlarged negative direct from a paper print, the enlargement will show the grain of the paper unless you adopt certain precautions. One good one is to make a kind of tunnel of white tissue paper to extend from print to camera, and to photograph in a good light. The tissue paper causes dispersion of the light, and the crevices of the paper get well illuminated, and therefore do not show so much in the new negative. Another good plan is to attach the print in optical contact with glass by means of gelatine; but this somewhat weakens the force of the original, and introduces the reflection difficulty. Try the tissue paper plan.

PATENT OFFICE LIBRARY

THE PHOTOGRAPHIC NEWS

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY

EDITED BY T. C. HEPWORTH, F.C.S.

Vol. XXXVII.—No. 1843. DECEMBER 29, 1893.

NOTES.

It has often been laid to the charge of the photo block producer that the portraits which he supplies are dreadful caricatures of the unfortunate persons for whom they are intended, and a sigh is heaved for the old carefully engraved woodcuts which gave such much better results. As a matter of fact, the block is not so often at fault as the way in which it is printed, for these process blocks are necessarily very shallow, and require not only good printing, but good ink and a fine surfaced paper.

A wood block suffers almost as much from careless printing, although it does not entail such extreme care in choice of ink and paper, and we have before us as we write a good—or, rather, a bad—example of pictures being spoilt in this way.

It is a whole-page advertisement in one of the popular penny weeklies, extolling the virtues of a certain cough pastille, and contains six portraits of singers and Society belles, each with an attached testimonial. The shadows in these faces, owing to quick printing, indifferent paper, and clogging of the ink in the lines of the wood block, represent great blotches, and might be described as piebald. This undesirable result is further accentuated by the large type announcement, which states that the effect is instantaneous.

The Woolwich Polytechnic Photographic Society announces its second annual exhibition of pictures and apparatus to be held, under the presidency of Mr. A. R. Dresser, on Thursday, Friday, and Saturday, February 8th, 9th, and 10th, 1894. There are three classes for members only and two open ones. The hon. sec. is Mr. W. Dawes, of 145, Chestnut Road, Plumstead, Woolwich.

"The investigation of these photographs will give us a far better insight into the phenomena of comet tails than we have ever had before." This is what Professor Barnard writes of a series of photographs which he has secured of Brooks' Comet—a comet, by the way, which was never visible to the unaided eye. These pictures were taken in October and November last, and exhibit a much longer tail to the comet than could be seen through the telescope. The sentence quoted above refers to the curious fact that the changes in the shape and direction of the tail vary, according to these pictures, in the strangest manner. On one occasion the appendage seems to have come into collision with some obstructing medium, and was badly shattered.

In several of these photographs of Brooks' Comet passing meteors have left long trails across the negative, and on one in particular appears a heavy, straight trail of this description which was due to a magificent aerolite which shot across the sky parallel with the comet's tail.

We are requested to remind our readers that the Photographic Society of Ireland will open their exhibition, on January 15th, with a *conversazione*, and that it will remain open until the 29th proximo. All exhibits should be delivered at 35, Dawson Street, Dublin, not later than January 6th.

In issuing a circular giving particulars of the above exhibition, the Society reminds photographers that the Photographic Convention of the United Kingdom will be held in Dublin in July, and they state that the members of the photographic and scientific societies, universities, &c., have taken up the matter so warmly, that there is every probability of the coming meeting being one of the largest and most successful ever held.

We have received a very interesting photographic memento of the great exhibition at Chicago, under the title of "Glimpses of the World's Fair," a book, or rather album, containing two hundred pictures of "The White City," as it is called. Among the subjects included are the main exhibition buildings, the grounds, all the foreign buildings, State and Territorial buildings, statuary, the lagoons, and the Midway Plaisance. The photographs are reproduced from photo-mechanical blocks, and it would have been better if some of them had been excluded, for the quality is not what it should be. On the other hand, some of the blocks are really good, and give one a vivid idea of the general appearance of this magnificent show.

The photographic arrangements at the Chicago Fair seem to have been productive of much dissatisfaction, as will be seen from the following paragraph which we clip from the *American Amateur Photographer*:—"In its financial results, so far as revenue is concerned, we expect the photographic concession has been a failure, the concessionists, including a relative of one of the leading officials, reaping a large percentage of the profits. By degrees they were compelled to reduce somewhat the enormous fee exacted for the privilege of making exposures on the grounds, and, as the sales of poor work decreased, were obliged to discharge many employées. The working of this department and the scandal connected with it will go down in history as one of the unpleasant things connected with the exhibition, and the new movement to secure good photographs will simply confirm the judgment of all acute observers that the department as a whole was incompetent and very badly managed. If it should lead to the introduction of broader notions as regards the practice of photography in future expositions it will have acomplished at least one good result."

The index to the volume of the Photographic News, which closes with the present number, will be ready next week. It will be sent to all our regular subscribers, and to any other of our readers who apply for it.

M. Andra, the treasurer of the *Société Française de Photographie*, has offered a silver medal for a simple, practical, and constant process of toning and fixing prints on gelatine emulsion, collodion, or other analogous substance. The present method of combining the toning and fixing bath gives rise, M. Andra points out, to sulphurisation and to uncertainty of results, and these drawbacks have led him to offer the medal. The Council of the Society have complete discretion to fix the conditions of the competition, the only stipulation being that the proofs shall not contain a trace of sulphurisation.

This month's *Knowledge* contains a very interesting photographic reproduction of a negative taken by Dr. Max Wolf, of Heidelberg. It represents part of the Milky Way, and the plate is thickly strewn with stars. But there are two lines drawn across it, one from east to west, and the other, a diagonal one, from north to south. These are the traces of meteors which crossed the field of view while the plate was being exposed, and one of them possesses the peculiarity of varying in thickness in different parts of its course, showing that the meteor itself must have varied irregularly in brightness in its passage through the air. The exposure given to the plate was one hour. It is accompanied with another photograph of the interior of Dr. Max Wolf's observatory at Heidelberg.

It would be difficult to say how many fashions have been set by the publication of photographs of distinguished personages containing some peculiarity either in dress or the arrangement of the hair. One of the earliest instances is probably that of the little ringlet of hair plastered upon the cheek, and known as the "kiss curl," the invention of which was due to the Empress Eugenie. A few years later came the Alexandra curl—a thick rope of hair hanging over one shoulder; and with the curl was associated the band of velvet round the neck. These were the characteristics of the earlier photographs of the Princess of Wales. The Prince of Wales made bowler hats possible for men of fashion, and he established the position of the Norfolk jacket. The photograph representing the Prince smoking and attired in this costume will be well remembered. The photographs of the late Duke of Clarence set the young men of his day running after the very tallest of collars and cuffs; the flowing bow had its origin in the style of necktie favoured by Lord Randolph Churchill in his pre-bearded period; and it is said the extreme neatness of Lord Rosebery's collars has given rise to a new form of neck-gear in which the points are turned back from a perpendicular opening. According to a fashion-writer in the *Telegraph* this week, long old-world chains of gold and jewels have been gaining in fashionable favour since the Princess of Wales was photographed wearing one of pearls over a velvet gown; and we can quite believe it.

THE LUMIÈRE-LIPPMANN COLOUR PHOTOGRAPHY.

BY F. E. IVES.

(*Concluded from page 796.*)

THE pictures are also projected upon a screen by means of the megascope or aphengescope lantern, and in the absence of a special device for examining them by daylight, this is the only really satisfactory way of seeing them. It is, however, necessary to employ a powerful electric arc-light in order to project them with satisfactory brilliancy up to even 2 feet diameter, as compared with 10 feet, or 25 times greater area for the photochromoscope pictures with the same light.

Seven pictures were shown at the Photographic Congress and at the Camera Club; 4 landscapes, 2 portraits with accessories, and 1 reproduction of a chromo-lithograph, a rather poor result, the original of which was not shown. Unlike Lippmann's photographs, they rendered the deepest shadows black and the high-lights white, and showed many delicate shades of colour which impressed the spectaters as being something more than the ordinary colours of thin films. One of the landscapes was beautiful, although the foliage appeared to be that of autumn, while it was understood that the photograph had been made in early summer. In parts of some, the chlorophyl green was fairly well represented, but in others, where autumn foliage was not suggested, the green was raw and metallic. The red of a tile roof looked dull and faded, the blues of the skies were criticised by some of the spectators, and the flesh in the portraits had an unnatural purplish hue; but in my opinion these defects are only such as one ought to expect from the manner in which the process was carried out, even assuming that it be really capable of making accurate colour reproductions if carried out in a thoroughly rational manner. From a theoretical point of view (and it follows, from a practical point of view), it is not reasonable to expect that a mixed colour like chlorophyl green will be accurately reproduced on a plate not sensitive into the red of the spectrum below the first absorption band of chlorophyl, or which is disproportionately sensitive to that red as compared to the sensitiveness to green. In the first place, the green rays only would act in producing the picture, resulting in a raw, metallic colour, and in the other case the red rays would act too much or the green too little, and result in a brown or red hue suggestive of autumn tints. Flesh colour, if the plate is disproportionately sensitive to blue, and not sufficiently corrected by yellow screen, must take on a purplish hue; or if over-corrected by yellow screen, a yellow hue must result. It follows that the plates must not only be sensitive to all colours, but the sensitiveness must be properly distributed along the spectrum, or, what amounts to the same thing, must be modified by the use of a quantitatively selective colour screen made up and adjusted by experiment in photographing the spectrum itself, just as I have for years made selective colour screens for carrying out the photochromoscope process and for orthochromatic photography, until the spectrum photographs correspond to the spectrum itself in the relative visual intensity of the different colours. Until this is done, it is not reasonable to expect that delicate shades of compound colours will be accurately reproduced by any process. It would appear from this that by no evident possibility can this method ever possess any advantage over the photochromoscope process in the matter of accuracy, because in both cases it depends (admitting every possibility for the Lumière-Lippmann process) upon the relation of sensitive plates and colour screens, which must be regulated in the same way for both processes.

One of the most remarkable things about this Lumière process is its rendering of blacks and whites. According to Lippmann's theory the blacks would be rendered by clear glass, and the whites by a film filled up with laminæ of deposit which would reflect light of every wave-length. In short, the greatest amount of deposit and opacity would be in the whites and the smallest amount in the blacks of the picture, as in an ordinary phatographic negative. I have already observed that the Lumière photographs, when seen by ordinary reflection, resemble a positive instead of a negative. It is further remarkable that the greatest amount of light reflected from these photographs comes from the parts which look like clear glass, and that even this amount, which makes the whites of the picture, is only equal to the reflection from a black glass, or the surface of the gelatine film itself. The shadows appear black, not because there is no deposit there (in which case the deepest shadows of the picture would be as "white" as the high-lights in the examples shown), but because the glass is obscured by a deposit so thick and matt that it scatters the light striking upon it, instead of reflecting it straight back at the critical angle.

In other words, we appear to have a positive where we are told that there is a negative; if this be true, is the positive the result of a "reversal" of the image by the long exposure, and, if so, is this reversal one of the conditions of success?

Does not this image, built up by photographic action upon the sensitive plate, act by a process of subtraction from the white light, which would otherwise be reflected from all parts of its surface alike, instead of by reflection from internal laminæ in the manner assumed by Lippmann?

Lippmann's theory, as I understand it, calls for a different series of laminæ within the film for every wave-length of light, amounting where white light acts, to over 30,000 laminæ in a film no thicker than a single wave-length of red light! Would not such a series of laminæ in a film reflect a great deal of light instead of adding nothing whatever to the normal reflection from its surface, which is all we appear to have in the examples shown? Cannot every colour actually shown in the Lumière photographs be reproduced by means of a single interference film of varying thickness, backed up or broken by a granular deposit of varying density? Have we anything more than this in the Lumière photographs?

It seems reasonable to suppose that the long exposure given to these pictures would produce a reversal of the image. The dense deposit in the shadows might result from the action of scattered light in the camera, or to preliminary exposure, or to the use of a too active developer, or to any or all of these causes combined. May we not be given an opportunity to learn the truth, in order either to prove Lippmann's theory, or to formulate a new and more rational one ?

At first glance it might appear that an examination of the Lumière photographs by transmitted light might yield an answer to all of my questions, by showing that the image is really a negative one ; but it is not even necessary, in order to explain the "whites" of these pictures, to assume that the image is positive throughout, but only that there is a superficial reversal, just sufficient to prevent the production, in development, of a deposit superficial enough to obscure the normal surface reflection of the gelatine film.

I have some hesitation in putting forth views which a more thorough examination of the Lumière photographs might lead me to modify ; but since such examination is forbidden, I can only hope that the questions which I raise may help to bring about such a thorough investigation of the subject as its importance demands.

In conclusion, it is worthy of note that the Lumière-Lippmann process, whatever its capabilities as to accuracy may prove to be, when it is carried out according to theoretical requirements is necessarily subject to limitations similar to and in some respects greater than the already successful photochromoscope process, which is carried out with commercial sensitive plates and ordinary development. Knowledge of this fact, which cannot be gainsaid, will doubtless lead many people to take an active interest in the friendly rivalry which promises to attend the further development and application of the two methods.—*A Communication to the Photographic Society of Philadelphia.*

TELE-PHOTOGRAPHY.

BY T. R. DALLMEYER.

(*Concluded from page 807.*)

ANOTHER method that I have recently employed is one that may interest you, and therefore I mention it because it is particularly applicable to the determination of the focus of tele-photographic systems. This method is dependent upon the earth's rotation, using the sun as a fixed object. A pinhole, or a lens of known focus, may be fixed upon the camera front by the side of a tele-photographic lens for the given extension at which the lens of known focus is in register (or in the case of the pinhole, if that be used, at any extension whatever). The tele-photographic lens for the chosen extension is then focussed upon the sun on the same plate. Simultaneous instantaneous exposures by both lenses are then made. If the pinhole is employed, it is exposed simultaneously with the exposure of the tele-photographic lens, and allowed to impinge upon the plate during the time the experiment is conducted. A convenient interval of time is allowed to elapse, when a second set of instantaneous exposures of the sun is made by the tele-photographic lens and the lens of known focus. In the case of the pinhole, which has been exposed during the whole period, the aperture is simultaneously closed. On development, the comparison of the distance travelled will give the proportion of the known focus to that of the lens which it is required to determine. I may mention here that the image given by a lens of 10″ focus will travel about an inch in twenty minutes. The experiment is preferably performed at equal intervals before and after the sun crosses the meridian. The image should also be at equal distances from—*i.e.*, similarly disposed about—the axis of the camera, this latter point being more important than the former.

It is evident that the focus of a lens could be determined from the movement of the sun on the plate for a given interval of time without reference to another lens, but it would involve a knowledge of the declination of the sun (to be found in the Nautical Almanac) and would lead to a somewhat tedious calculation.

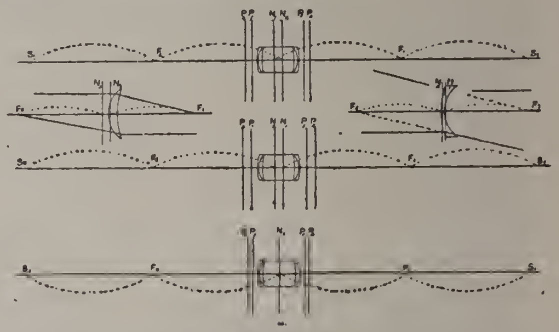

FIG. 1.

I shall mention one other system of finding the equivalent focus that may be readily conducted in an ordinary room on a winter's evening : this method, too, will lead up to the determination of the focus of a negative lens. It is dependent upon the different sizes of an image of a known object for differences of the conjugates : (1) Focus upon an object of known size and measure the size of the image given ; (2) remove the object of known size to a different distance, either nearer or farther from the lens, and measure the size of the image *then* given ; from these two sets of measurements the focus is then determined. Calling o the object, i and i'' the images given in two cases, then $\frac{i}{o} = \frac{v}{f} - 1$, $\frac{i''}{o} = 1 + \frac{v'}{f}$, v and o being the distance from the nodal point from which the focus is measured to the screen and f the focus for parallel rays which we wish to determine—in other words, the equivalent focus of the lens. By subtracting one equation from the other the uncertainty about the elements v and v' is eliminated, as their difference only is taken into account, and the focus, f, which we wish to obtain, is determined, $f = \frac{v' - v}{1' - 1} \times o$.

2. *The Focus of the Negative System.*—The only methods that have been described in this respect have been,

firstly, the very rough-and-ready one of finding (by trial error) a positive system of known focus exactly equal to that of the negative—in other words, placing two lenses in contact, so that no focus whatever is formed; and, secondly, by combining a more powerful positive with a negative, deducing from the difference of the focus of positive alone, and the focus of the positive combined with the negative, the focus of the negative lens system.

I propose to describe a method in which there are no elements of uncertainty, and this can be performed with the tele-photographic system in an ordinary room to determine the focus of the negative lens. First, focus upon an object, preferably an illuminated scale with definite markings, with the camera at a considerable extension. A piece of clear glass is placed in the plane of the image, and the size of the image read off by a micrometer. When this is noted, the second observation is to measure accurately the distance from the plane of the focus to some distinct point in the negative lens mount. Next rack the camera in a considerable amount, the more the better, and re-focus the tele-photographic lens with the focussing screen in its new position, and a second time read off; first the size of the image now given, using the micrometer; second, the distance from the plane upon which the image is now formed, and the definite mark upon the negative lens mount. The third operation consists in removing the negative lens entirely and focussing the positive element alone, and taking the measurement of its image with the micrometer. From these measurements one determines the focus of the negative lens. Calling o the measurement of the object given by the positive lens alone, v and v' the back foci as above, and i and i' the measurements of the image at these back foci respectively, the same formula as given before now obtains:—

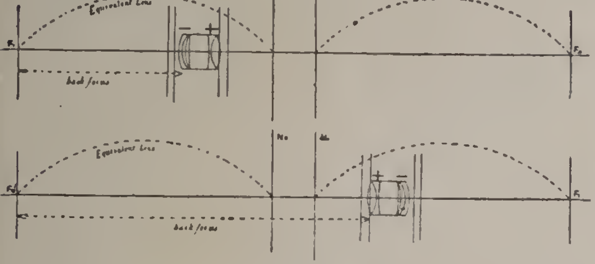

FIG. 2.

$$f\text{ (the focus of the negative)} = \frac{v' - v}{i - i'} \times o.$$

3. *The Position of the Nodal Points of the entire System for a given Separation.*—These, as I have already said, are determined by the foci of the positive and negative lenses employed in the system and the separation for the time being. For a given separation they are temporarily as fixed as in every lens system, whether positive, negative, or a combination of both.

4. *The Intensity of the System for a given Extension of Camera.*—You are all aware that the intensity of a lens is dependent upon the ratio existing between the available or working aperture of a lens and its focus. We have seen that the focus of a tele-photographic system for a given extension of camera may be taken either as an absolute measurement, or the focus may be considered in the sense of the magnification obtained as against that of the positive lens forming part of the system.

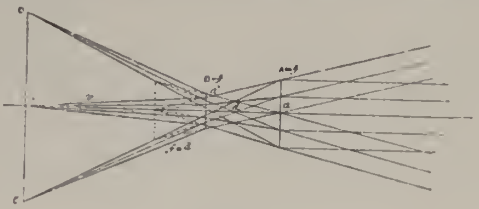

FIG. 3.

The intensity, then, may be arrived at by reference to either of these two considerations. In the first place, if the absolute measurement of the focus be written down, the intensity is arrived at by dividing it into the diameter of the aperture employed in the positive lens, or the diameter of any diaphragm that is employed in the positive lens when making the exposure. The second method is perhaps the simpler, for, in this case, whatever intensity be employed in the positive lens, it is only necessary to divide that fraction by the magnification, and you have forthwith the intensity of the tele-photographic system.

5, 6. *The Angle of View and Plate covered.*—These are dependent upon the foci and diameters of both positive and negative elements contained in the system. (Referring to a figure) the diameter of the circle beyond which no light can pass being called D, apertures of the positive and negative elements, a and a' and the foci f and f'

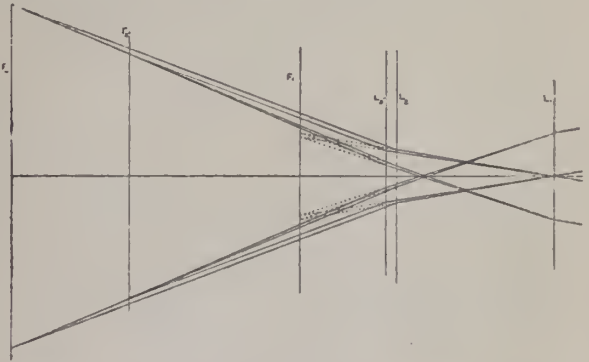

FIG. 4.

respectively, the formula for obtaining the diameter is as follows:—

$$D = (v + f')\left\{\frac{avf' + a'f(v+f')}{f'[v(f-f') + ff']}\right\}$$

and the angular diameter of the field of view is—

$$= \tan^{-1}\frac{v(a'f+af') + a'ff'}{f[v(f-f') + ff']}$$

$$= \tan^{-1}\frac{a'f+af'}{f(f-f')}\text{ approximately.}$$

The first of these formulæ only requires a knowledge of arithmetic to readily determine the diameter of the circle covered, and the second is similarly interpreted by a reference to a table of natural tangents to obtain the angular measurement. It will be observed that, although the angle is nearly a constant, this does not imply that for various extensions of camera the angle included upon one of the same plate will be the same. This, of course, is not the case, and is, in itself, a very valuable feature of the instrument, in that it is not infrequently found that a portion only of some object composes pictorially, and that its surroundings, if included, may mar the effect. By the use of this lens, a camera extension may be chosen to include only just so much as may be desired, and allowing this to occupy the whole plate.

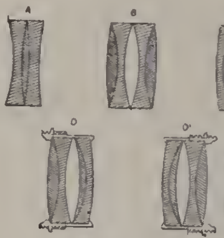

Fig. 5.

We have now examined all the elements necessary for the exact determination of the capabilities of any tele-photographic system. It is evident to you that any positive lens, no matter whether of the portrait, rapid rectilinear, or slower types of lenses, can be converted into a tele-photographic system. If the focus of a negative lens be chosen one-half that of the positive, you know in the limit that for any extension of camera the tele-photographic lens will give double the magnification of a positive of the same camera extension. If the negative lens be a third of the focus of the positive, the size of image will be three times that of the extension of camera chosen, and so on.

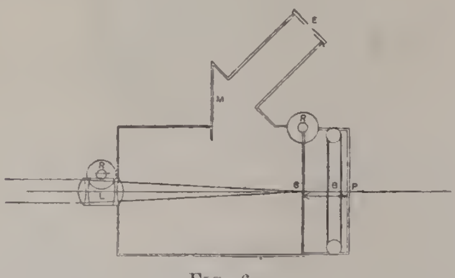

Fig. 6.

Hence, in making a choice of a suitable negative lens to combine with any positive lens, attention must be paid to the object to which the lens will be put. Weaker negatives will, of course, not give so much magnification as stronger ones, but score on the points of greater rapidity and greater covering power.

I will now call your attention to the most recent form of negative system that I have adopted. You will probably remember that the original form which I show you consisted of a single cemented positive and a single cemented negative. This I discarded within a few months of bringing it out, on account of the difficulty in overcoming very violent chromatic error in other than central pencils; also from the fact that a single system constructed on these lines does not enable one to correct the errors of spherical aberration for other than one definite camera extension; and, furthermore, it was impossible to eliminate the very violent pincushion distortion. The next step was to employ as a positive element a system corrected throughout its field, and to construct a negative which should enable the entire tele-photographic system to be properly corrected throughout the field, with the means of correcting the aberrations of spherical and chromatic order, and reducing distortion to a minimum. The form adopted consisted of a symmetrical form with exterior convexities as opposed to the single triple cemented form with exterior concavities. Later on I adopted another symmetrical form for use with lenses of low initial intensity, still maintaining the exterior convexities. This form I found useful in reducing the astigmatic error contained in the older types of cemented doublets, and from its form enabling weaker negative lenses to be made larger in diameter than was formerly possible, tending to greater quality of illumination and greater covering power.

On the occasion of a lecture I gave in March of this year at the Society of Arts, I described a form of unsymmetrical negative, and explained that it had an advantage over a symmetrical form, in that, by using it with one surface of the combination towards the positive lens or reversing it, I was enabled to obtain two planes for the reception of the image, one somewhat near the lens and the other at a considerable distance from it, in each of which there was perfect flatness of field. You will observe the manner in which the lenses are mounted, and the right position in which to use them is conveyed by the manner of mounting. The projecting cell projects inside the camera for a small extension of camera when the positive lens is more separated from the negative, and the cell is reversed and projects into the lens mount for a greater extension of camera, when positive and negative lenses are nearer together, thus assisting portability.

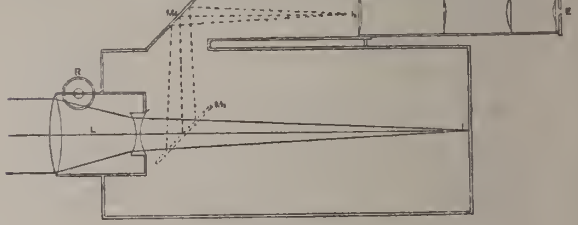

Fig. 7.

Now, with any fixed system, there is only one plane or definite camera extension in which there is a perfectly flat field. For an extension shorter than this the field is curved towards the lens, and for a greater extension the field is curved in a reverse direction. Now, by the form (illustrated by the lecturer) there are two such planes of perfect flatness, as already stated; and, furthermore, by the unsymmetrical form adopted, the eccentrical pencil is admirably corrected for both positions. In the case of the shorter extension, with the two concave contacts towards the lens, the pencils leaving the positive lens become lengthened, as it were, and give a flat field at a suitable distance for producing instantaneous work. If the negative were kept in the same position for a considerable extension of camera, the field would have a large amount of reversed curvature of field and a badly corrected eccentrical pencil. By reversing the negative element in the cell, the field becomes perfectly flat, and the eccentrical pencil perfectly corrected; in this case, as you will observe, the two convex contacts being presented towards the rays leaving the positive element assisting in correcting the residual astigmatic error of the positive system. It has been in the effort of producing greater rapidity in tele-photographic systems, when it is only possible to employ moderate camera extension, that decided me to develop this form of negative to its present state of utility. When tele-photographic lenses were first employed, the general desire was high magnification only, and in that case I found the symmetrical form answer its purpose adequately, as it was constructed with a definite object in view, and not so much for varied applications.—*West London Photographic Society.*

* * *

Potting big game with a snapshot camera, instead of shooting them with a rifle, has been more than once suggested by the humanitarian. It looks as if the Duke of Newcastle had put the suggestion into practice, as for some time past he has been in California, in company with Mr. Gambier Bolton, photographing big sea-lions on the Pacific coast. The Duke, it is said, has a mania for photographing wild animals in their native surroundings. This is better than shooting them, and we do not know why it should not be as exciting.

Some time ago we stated that a photograph of Lobengula had now been obtained. Our statement has received confirmation from the South African papers. It came about in this way. In the October number of the *Review of Reviews* Mr. Stead gave pictures purporting to be copies from a photograph of the Matabele king and his "favourite wife," the said photograph being obtained from "a recent traveller who preserves a prudent silence as to how he got it." There was reason for this "prudent silence," for when the *Review of Reviews* reached the Cape, it was at once discovered by the *Natal Mercury* that the man and woman portrayed are well-known Kafirs living at Durban. Probably it was thought that one black man is very like another, and that any Kafir, providing he were big enough, would do for Lobengula. As a matter of fact, probably the number of white men who have seen Lobengula does not exceed half a dozen, and it is not likely any of these had the opportunity of photographing him, for a more exclusive and suspicious monarch never existed than the Matabele king in his prosperous days.

THIOCARBAMID-HAUFF.

WE have been requested to call attention to the following statement, by Dr. Eder, concerning thiocarbamid:—On the 10th October, 1892, Mr. J. Hauff, of Feurbach, Stuttgart, submitted to me a sample of thiocarbamid, with the request to test same, and report thereon in regard to the application of same in photography.

According to the statement of Mr. Hauff, thiocarbamid should possess the property (when added to the fixing bath) of preventing bromide-silver gelatine plates, as well as chloride-silver gelatine plates, and bromide-silver gelatine papers, from colouring the gelatine layer yellow, and should prevent the formation of a so-called green fog. The preparation sent consisted of some white crystals, and gave in water a colourless liquid. I found that it acts indeed (in acid solution) as a preventative against yellowish negatives. I made a solution of 10 parts thiocarbamid; 10 parts citric acid or sulphuric acid; 1,000 parts water. I immersed in this solution a pyro-negative strongly covered with green fog, and, after a short time, the yellowish green colour had disappeared. With amidol I was not able to obtain negatives showing green fog, and, therefore, could not make a trial. If the salt is added to the fixing bath it prevents the formation of green fog with plates and bromide-silver papers; but it must be observed that the bath should be *acid*. For fixing I found the following formula very useful:—Water, 1,000 cubic cm.; fixing soda, 200 grammes; thiocarbamid, 10-15 grammes. To this solution is added 50 grammes of bisulphite of soda. I would observe that plates as well as papers before fixing must be washed sufficiently to remove all traces of the developer. As the action of thiocarbamid in the fixing bath is only of proportionately short duration, it is recommended to use an ordinary acid fixing bath, which, as is known, will by itself prevent to a certain extent the formation of green fog; and, after the use of this, if necessary, the above decolouring bath can be applied, which will become necessary, specially for certain kinds of bromide-silver gelatine paper. I can certify, therefore, that for this purpose the said salt, thiocarbamid, proves a good and useful means of removing discolouration.—(Signed) J. M. Eder, Director of the K. K. Lehr-u, Versuchsanstalt fur Photographie und Reproductionsverfahren in Wien.—Vienna, December 3rd, 1892.

* * *

A writer on fashions in an evening contemporary protests against the use of portraits of celebrated personages for the purposes of advertisement, especially so far as women are concerned. It seems hard, the writer holds, that because the Princess of Wales is so immensely popular, an unmistakable portrait of her should be used to advertise a cheap costume, or some other ware. We do not see the hardship, provided the use made of the portrait is a respectful one. It is the penalty one has to pay for popularity.

The Photographic News.

A WEEKLY RECORD OF THE PROGRESS OF PHOTOGRAPHY.

EDITED BY T. C. HEPWORTH, F.C.S.

FRIDAY, DECEMBER 29, 1893.

All Advertisements and communications relating to money matters or to the sale of the PHOTOGRAPHIC NEWS, should be addressed to the Publishers, Messrs. Alexander & Shepheard, 21, Furnival Street, London.
All other Communications intended for publication should be addressed to the Editor of the PHOTOGRAPHIC NEWS at the same address.
The PHOTOGRAPHIC NEWS is issued every FRIDAY, and may be obtained at Messrs. Smith & Son's Railway Bookstalls, or through any Newsagent

TERMS OF SUBSCRIPTION.

THE PHOTOGRAPHIC NEWS.	Yearly.	Half-yearly.	Quarterly.
	s. d.	s. d.	s. d.
If obtained of a Newsvendor or at a Railway Station	8 8	4 4	2 2
Including postage to any part of Great Britain	10 10	5 5	2 10
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ALEXANDER & SHEPHEARD, 21, Furnival Street, London, E.C.

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A RETROSPECT.

AS the last days of December draw near, we are most of us busy in bestowing upon friends and relatives what are called "seasonable compliments," chief among which is the stereotyped "Happy New Year." But while we somewhat boldly anticipate for ourselves and those we love a prosperous future, we cannot help glancing back at the twelve months which have been added to Time's long roll, and almost unconsciously review the experiences which it has brought to us — joys to some, sorrows to others. Those among us who give any thought to the progress of photography go through a somewhat similar process with regard to their beloved art—while wishing it a prosperous new year, they look back at what has been done during the past twelve months, and ask themselves whether real progress has been made. No one can doubt that photography is nowadays very much alive. For every ten photographers who learnt the art over a silver nitrate bath, there must be now at least one thousand, counting, of course, the amateurs as well as the professionals. Possibly they are not all photographers, if their claims come to be examined very closely, but they think that they are and they use up many plates, and therefore fill a useful place in the world. So that if we include them, our estimate of the numbers engaged in camera work cannot be very far wrong. The increase in the number of photographic societies is so marked that a list of them becomes a very formidable thing to peruse, and compilers of annuals have had seriously to consider whether they shall get over the difficulty of enumerating them by the vulgar expedient of abbreviation, or miss them out altogether. But all the same these societies as a whole are doing good work; but they might do better if they were to gently repress those aspiring young members of their body who think that after six months' acquaintance with a camera and lens they are qualified to address their fellows upon any subject whatever. The Affiliation scheme originated by the parent Society, to which between forty and fifty societies have already responded, will do much to check this kind of thing, by providing better material for the provincial bodies to busy themselves with.

The subject of photography, in the variegated hues of nature, has received a fresh impetus during the past year, in consequence of the modification of the Lippmann process by Messrs. Lumière, the results of which were so well shown before the recent Congress at the Society of Arts. And yet we are no nearer the solution of the great problem than was Daguerre, who, when a scene painter at Paris, used to watch the fleeting images of his camera obscura long before the process was discovered which bears his name. Much more marked is the advance in mechanical colour printing, which bids fair, in course of time, to supersede chromo-lithography, or that system of printing from many electros which has of late displaced stone. At present the three-colour photo process has certain difficulties to overcome which render its results uncertain, but we may reasonably hope that there is a future before it.

Mr. Anderton's beautiful invention, by which an image on a lantern screen is made to appear in stereoscopic relief, is the first practicable process of the kind. It has a high scientific interest, but by the general public, we fear, it would not be much appreciated. It has, we have no doubt, directed renewed attention to the stereoscope, which used to be such an unfailing source of attraction in every middle-class home about thirty years, or more, ago. Certainly many papers have been read upon this subject before our societies, and we should much like to see the beautiful instrument once more coaxed back from oblivion. There are many old-established firms in London, and elsewhere, who would be glad also to see the stereoscope once more in the position which it formerly held; for hidden away in boxes, and upon shelves, are thousands of beautiful pictures—pictures which cannot be beaten to-day, with all our boasted progress—which would bring delight to the eyes of a new generation. These pictures are not on paper, but on glass, and the old albumen process (associated as the name is with yellowness and ghostly images on the former medium) is so stable, that the pictures are to-day as fresh and vigorous as they were on the day of their birth.

In apparatus the advances in 1893 have not been sufficiently marked to call for exaggerated praise. Aluminium has served a very useful purpose in lightening its weight, and there are numberless minor improvements which offer great conveniences to workers. It is certain that good English-made cameras are the very best that the world can produce, and we constantly see in foreign journals laudatory references to the excellence of their manufacture.

New developers have come upon us in great abundance, but as yet they have not displaced the old well-tried favourites. For special purposes, such as the development of very quick exposures, the treatment of bromide and other papers, they, many of them, do excellent service, and we know of some good workers who are never tired of singing their praises. But for the all-round work which comes to the average photographer the old agents still suffice.

Our retrospect might be drawn out to far greater length, but it is time that we brought it to a close with the sincere wish that the coming year will bring health and happiness to all who read these lines.

THE SPEED OF PLATES: A CRITICISM AND A REPLY.*

BY H. M. ELDER, M.A.

(*Concluded from page* 814.)

IT is only necessary to draw the curves to see that Abney's calculated curve fits that drawn from observation far closer than Hurter and Driffield's. In fact, this is shown in the diagram produced by Dr. Hurter at the discussion of Abney's paper, although the case is an unfavourable one for the latter author's method. Having once started, however, on the discussion of Dr. Hurter's arguments in reply to Abney's paper, one could go on refuting them almost to eternity. No one would accuse the doctor of intentional unfairness, yet many of his arguments are unfair in the extreme. For example, in one place he asserts that, it being allowed that, plotted in a certain way, the law of error gives rise to a parabola, Captain Abney proceeds to prove that this curve does not differ much from a straight line. Surely no unbiassed person would deduce this from Abney's paper. What he does in effect say is, that, as plotted by his method, the curve of transparencies has a point of inflexion, and it is known to every tyro in mathematics that in the neighbourhood of a point of inflexion a curve does not differ appreciably from a straight line.

There is no need to discuss Dr. Hurter's demonstration of the conditions of photographic truth. These may be discovered more easily without the use of any elaborate functional equation. It may, however, be noted in passing, that, unless the printer has maligned him, Dr. Hurter's solution of the functional equation is, to say the least, incomplete. Besides, it has been pointed out above that Dr. Hurter's own method of speed determination is far less in accord with the conditions for photographic truth, as laid down by him, than the law of error formula. It is necessary to point out that the equation for density thus derived is not in accordance with the equation called "the approximate equation" in the paper entitled "Photo-Chemical Investigations." There is a factor required, which is of importance, since the equation is a logarithmic one.

It would be too wearisome to hunt down the whole of the errors and confusions in Dr. Hurter's criticisms to the bitter end. He looks on Abney's method with a jaundiced eye, and is consequently unable to see any good in it. One great point in the method is that the measurement of speed depends solely on observation and not on any assumption of the law of error or any other law, though the full interpretation of the number obtained, no doubt, requires such an assumption. Yet Dr. Hurter says, "We, therefore, depend entirely upon the law of error. If that be true, the rapidity by means of it may be true also. If it be false the rapidity may be erroneous." Surely this is prejudice pure and simple!

Dr. Hurter does not in the least seem to realise what is meant by "determination of speed." As has already been shown, a rough number only can be assigned, and this cannot be an absolute quantity since it depends on the unit of speed chosen. All that can be done is to roughly decide the relative speed of two plates. We have no absolute unit of photographic speed to work in, but we can easily say that a rapid dry plate is about thirty times as fast as a certain wet plate. It is as if we had no measure of length. Then we should be unable to say that A. could walk four miles an hour because there would be no miles; but there would be no difficulty in deciding that B. could run just twice as fast as A. could walk.

It appears from his criticism that Dr. Hurter thinks that both his number and Abney's are numbers representing the speed of a plate in absolute units, and he gives much trouble to the task of showing that the numbers obtained by the two methods are so different that Abney's method makes a certain plate out eleven times as fast as Hurter and Driffield's. All this is, of course, a pure misconception. All that the law of error method does is to give a method of roughly comparing the speed of two plates under similar circumstances, and all that Hurter and Driffield's method does is exactly the same thing, with the difference that the quantities compared do not necessarily in the least represent the speed of the plate as used in practice.

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* Paper read on Thursday, November 23rd, at the Camera Club. Communicated by the Author.

There is yet another fact, however, which has a serious bearing upon all the work that has been done in the matter of speed determination. In a paper presented to the Royal Society in the early part of the present year, Captain Abney proved that the assumption hitherto made by all photographers, himself among the number, was untrue—viz., the assumption that the effective exposure was proportional to the intensity of the light multiplied by the time of exposure. If this were true, we should find that if two patches on a plate were exposed, one at one foot from a candle for one-tenth of a second, and one at ten feet from the same candle for ten seconds, they would be indistinguishable on development. This, however, is very far from being the case; and this discovery seriously affects the accuracy of all Hurter and Driffield's work, since they made their exposures by means of a standard candle, the distance of which from the plate was varied as well as the time of exposure. The discovery no doubt affects Abney's measurements and those of the writer. But, so far as those made by means of a Spurge's sensitometer are concerned—that is to say, by varying the brightness of the light from point to point of the plate, but keeping time of exposure the same for every point—they are at least comparable among themselves. The number of varying factors in the problem is certainly reduced by one so far as each plate is concerned. It is true that, at p. 9 of "Photo-Chemical Investigations," Hurter and Driffield say that they have satisfied themselves that an exposure of $\frac{1}{4}$-candle meter for forty seconds produces the same effect as one-candle meter for ten seconds. But it is apparent from this that the experiments with which they were satisfied must have been quite untrustworthy, as the most casual glance at Abney's paper in the "Proc. Roy. Soc." will show, for it is shown there that by an experiment of the simplest nature, it is easy to prove that this is not the case. It is, perhaps, a fair argument from this that if these authors were so readily satisfied in one case they were probably equally easily deceived in others, and there is considerable doubt thrown on their whole series of experiments by this consideration.

To sum up, let us now review and try to assign its true position to Hurter and Driffield's work. All must admire their enegy, ingenuity, and perseverance, and, in fact, their whole work, viewed as a "serious attempt" to solve the vexed question of the rapidity of plates. But they certainly cannot be credited with any real progress. No sooner was their paper published than Captain Abney, than whom there is no higher authority on the subject, pointed out, and proved to demonstration, that their method of measurement was wrong in principle and was affected by a considerable systematic error—viz., that it could take no proper account of the large proportion of light scattered by the deposit on a negative. It now appears that they themselves have retired from the position they took up in their paper, that "ratio of gradation," and, therefore, also, "rapidity," is independent of the developer. At least this seems to be the fair interpretation of the second paragraph in the preface to the reprint of their "Photo-Chemical Investigations," published by Messrs. Cadett & Neall, in their *Dry Plates*, for June, 1893. Here they acknowledge that "extreme modifications in the developer" may bring about some alteration in density ratios; but go on to say that this fact is of no practical use, and all photographers should "scrupulously avoid" taking advantage of it. In fact, that no one ought to use anything but a ferrous-oxalate developer! This strongly reminds one of Du Maurier's Professor of Music, in *Punch*—"You have a pleasing voice, my young friend, but you do not use it in a legitimate way." "Perhaps if I did it would no longer please." "Ah, what does that matter? You should always produce your voice in a legitimate way, whether it pleases or not!" Anyhow, whether they have reconsidered this matter or not, it has again and again been shown that, especially with the new developers, modification in the development may produce great modifications in the resulting negative. In fact the writer has some plates which show that visible reversal may be produced or not at pleasure on similar and similarly exposed plates by varying the development.

In the original paper the main formula, which purported to be deduced from theoretical considerations, was abandoned in favour of an approximate empirical formula, and one object of the present paper has been to show that even this approximate formula, and the whole method of speed determination, of which it is the ground work, is based on a misconception, and is practically useless, as it applies to a portion of a plate—that is to say, some of the highest lights of the negative that is not, as a rule, utilised by the photographer. In fact, it may be said that Messrs. Hurter and Driffield's paper is a monument of painstaking but misapplied ingenuity.

BRISTOL INTERNATIONAL EXHIBITION.

Second Notice.

It is always a matter of satisfaction to find one's own views and opinions endorsed by others, especially if those others are men of independence of thought, whose opinions are worth having. And thus it was when we walked through these galleries at Bristol and found that certain pictures to which we had given unstinted praise in our notice of the Salon in October last had been chosen by the judges here as being worthy of more solid recognition. In Class V., devoted to marine subjects, is one of these pictures by Mr. H. W. Bennett, which we deservedly praised at the time referred to, and we are gratified at finding that it has won a silver medal. Its title is "At Eventide." There are other pictures in this class which merit careful attention, including some good work by W. P. Marsh and A. W. Gotlieb. We must not omit to notice, too, eight exquisite little marine studies, in platinum, by H. Oswald Isaac. These are most perfect in quality, full of sunshine and sparkle, and have been awarded another silver medal.

It is always difficult to arrange a large exhibition in a manner that shall be satisfactory to all, and especially is this the case when the pictures have been divided into classes. Awkward arrangement is often necessary, because it is impossible beforehand to know the approximate number of frames which may be sent in to each class. In this present exhibition, for instance, we find in the main gallery the pictures in Class V., which we have just reviewed (Small Marine), while Class IV. (Large Marine) is in another room. And, although we must skip in the catalogue from No. 200 to 800, it will be better if we review Class IV. here, and so finish with the marine pictures. The silver medal goes to No. 813—"On the Top of the Tide," by Bernard Lintott—a picture to which we called attention in our review of the Salon, and the bronze is won by Mr. Sutcliffe's "Whitby Harbour," No. 796. This gentleman has coaxed so many gems out of Whitby and its neighbourhood that if we held the belief, common enough in Eastern countries, that the camera robbed the original of some of its attributes, we should be inclined to think that Whitby can have very little of its charms left. There is a curious and very effective dayhreak picture here, No. 783, "Sunrise on Lake Ontario," by J. E. Dumont, which is worthy of much commendation, and the class as a whole is a good one. And so it ought to be, for as a rule the photographer who devotes himself to such subjects has one advantage that the more ubiquitous worker is often denied—he can depend upon good light and plenty of it. With a bright sky above and a natural mirror below, the objects which he photographs are bathed in light whether the sun be shining or whether it be hidden by clouds. Many of these pictures might have been included in Class VI., "Large Instantaneous," for most of them are shutter exposures, and it would have been better, perhaps, if this had been the case, for Class VI. is decidedly weak. The silver medal was withheld, and the bronze is given to a clever picture by E. Hawkins. This gentleman has another picture, which was hung at the Salon, "Evening on the Thames," and his work generally is very good. "The Grand Canal, Venice," by Johnson Bros., is an effective picture, which in exhibitions of less general merit would possibly have earned an award. Another section devoted to instantaneous pictures is Class VII.; but this is limited to photographs of small size. We are now so accustomed to quarter-plate snap-shots of this character that they somewhat disappoint one. The express train tearing along at sixty miles an hour, which moveth not; the man jumping over a tape, the horseman over a hurdle, and all the rest of it, seemed very wonderful when the capabilities of the gelatine plate were little understood; but now we are rather apt to associate such work with under-exposure, forced development, and absence of all artistic merit. Still, it is as well that such pictures should appear at our exhibitions, if only as an encouragement to plate-makers and to those whose business it is to make instantaneous shutters. In this class the silver medal has been awarded to a series of clever snap-shots by Percy Lewis. They are the work of a hand camera, and are printed in platinum. The bronze medal was withheld. Class VIII., "Interiors," is decidedly a strong one, indeed one may say that seldom have so many good pictures of this kind been found in company. The judges recognised this state of things by awarding two extra medals. One of them goes to Mr. S. G. Payne, who sends no fewer than two dozen large pictures of excellent quality. These are all hung on the line, and so close to one another that each robs its neighbour. If Mr. Payne had sent in one quarter the number and could have had them spaced out better, or mounted with wider margins, his excellent exhibit would have proved more attractive. The silver medal in this class goes to No. 627—the Choir of St. Paul's Cathedral—a very excellent work by Mr. H. W. Bennett. The bronze medal is awarded to two capital pictures, by G. Baker, of "Haddon Hall, and "Tewkesbury Abbey"; and the second extra bronze to G. Hepworth for 675, which includes, strange to say, another picture of Haddon Hall. There are many other good pictures in this class, over which the judges must have lingered long before their final decision was made.

In Class IX. the silver medal was kept back, but the bronze was awarded to W. C. Hemmons, for his excellent photographs. "A Few Old Buildings," by Harold Baker, some capital platinotype pictures, are worthy of honourable mention; and the "Oriel Window at Nuremburg," by the Rev. Precentor Mann, is another good piece of work.

In Class X., "Small Portraits," honours are not divided, both silver and bronze medals being won by H. Baker. The next class was for larger portraits, and here again Salon pictures carry off the bronze medal. These are the beautiful works of Mr. Fred. Hollyer—portraits of the Rev. Stopford Brooke and of H. Davis, Esq.—the silver medal going to an exquisite portrait of a child by W. N. Warneuke. In the *Genre* class, No. XII., there are two curious and effective pictures by B. V. Reeves which are very original and effective in treatment. In the first, "The Alarm," some men have hastily risen from a camp fire, fearing a night attack from man or beast, and in the second, "Christmas Eve in the Bush," we have the same camp fire with men carousing around it. The pictures have evidently been taken at night in the open air by means of a cleverly-arranged magnesium flash. We should like to have seen one of these pictures medalled, for originality is commendable. The silver medal in this class goes to a clever composition by Miss E. J. Farnsworth, and the bronze to an excellent slum picture, "Life in a Court," by F. M. Sutcliffe. There is nothing else worthy of special note until we come to Class XVII., in which the silver medal is awarded to W. I. Chadwick for a series of thirty-five very fine photomicrographs. The other exhibits in this class are quite put out of joint by this first-class one, and the bronze medal is not awarded. The Zoological Class (XIX.) contains some good things, and none better than that to which the silver medal has been awarded, "Animals at the Zoo," by H. Sandlands. The bronze medal is retained in hand, but we almost regret that it was not given to 743A, a study of wild chamois by C. Staeuhli, for it must have wanted much time and perseverance to stalk these timid creatures with such successful results.

There is a very fair show of apparatus under the names of two well-known local firms. Mr. M. W. Dunscombe, of Bristol, exhibits some good cameras with special features. He also shows Ross' lenses; Beck's "Frena" camera, which has captured a silver medal; Watson's cameras; the new "Nalda" camera for carrying eighty films; the "Allendale" optical lantern, to which has been awarded a bronze medal; Houghton's "Shuttle" camera, Paget printing requisites, and other photographic novelties. The other local firm is that of H. Husbands & Co., who show a large collection of cameras, lenses; an improved portable stereoscope, with vertical and horizontal adjustment to the eye lenses; the "Chandos" reading stand, biunial lanterns, and many other excellently constructed articles.

In closing this review of the fine exhibition at Bristol we must congratulate the President and the Committee on the excellent result of their labours, and must express the hope that when the accounts are made up it will be shown that the good people of this important Western city have not been slow to appreciate the efforts made on their behalf. It is somewhat unfortunate that this exhibition should come at the time when a big industrial show is in progress at Bristol, but we hope that the two enterprises will not unduly clash with one another.

PATENT INTELLIGENCE.

Compiled for the Photographic News *by the Patent Department of Messrs. Herbert Haddan & Co., of* 18, *Buckingham Street, Strand, London, W.C.*

Applications for Letters Patent.

23,894. Alfred Watkins, 28, Southampton Buildings, Chancery Lane, London, "Method and Apparatus for Timing Photographic Development."—*December 12th*, 1893.

23,938. William Ritchie Baker, 9, Belmont Villas, Wallington, "Improvements in Photographic Cameras and Apparatus connected therewith."—*December 13th*, 1893.

24,114. George Thomas Washington, 6, Wilson's Road, Hammersmith, London, "Improvements in Photographic Apparatus."—*December 15th*, 1893.

Specification Published.

20,042. *October 24th*, 1893.—"Sensitised Paper." A Hesekiel, 32, Landsbergerstrasse, Berlin, Germany.

Relates to the manufacture of granulated paper and rendering same capable of photographic printing whereby artistic effects may be produced. The improved paper is prepared in the usual way, either by hand or machinery, but of sufficient substance to receive the impress from rollers or otherwise of a granular surface; the granulations may represent ears of corn, or other small matters, or may consist of indentations, corrugations, waved, curved, or other lines, the object being to break up the surface of the paper somewhat regularly or irregularly, so that, when made light sensitive in the ordinary way and operated on, the printed matter or photograph may represent the appearance of line or other engraving or etching or other effect.

Printed copies of the full specification of above patent may be had by forwarding 1s. for cost of each copy and postage to Messrs. Herbert Haddan & Co.

CORRESPONDENCE.

THE SPEED OF PLATES: A CRITICISM AND A REPLY.

Sir,—Under the above title, Mr. Elder defends, against the criticisms which we passed upon it, a paper entitled "Rapidity of Plates," read by Captain Abney before the Camera Club. Although we are not members of this Club, we have, in obedience to its rules, confined our criticism to its *Journal*, "for private circulation only," and we are much surprised that the Camera Club and its President, whilst enforcing silence upon us, have permitted Mr. Elder to give wider publicity to his remarks.

We do not suppose for one moment that Captain Abney engaged Mr. Elder as a special pleader. He is quite able to defend himself, and, as a matter of fact, published a written reply to our criticism a month afterwards; nor do we suppose that Captain Abney approved of the style and the contents of this attack upon our work, the arduous nature of which no one can more fully appreciate than he. But why this second reply on Captain Abney's behalf? We have pondered over this puzzling question, and find it more difficult to solve than the problem of speed determination. At first we came to the conclusion that we must have seriously offended Mr. Elder with some remarks we made with respect to his own paper, "Some Notes on the Effect of Light on Photographic Plates"; but, on again perusing the record of these remarks, we have to dismiss the idea that we could have given such offence as would justify the attitude he has thought fit to take up. The inaccuracies in which his paper abounds, and its bitter and ungenerous tone, inclined us to conclude that, in criticising Captain Abney's paper, we must unknowingly have criticised some of Mr. Elder's own work; and, were it not for our conviction that Captain Abney is the last person to need Mr. Elder's assistance, and that he would scorn to publish as his own work anything communicated to him by another, we should think that we had found the real key to the situation. As it is, we are at a complete loss to understand the motives which dictated Mr. Elder's angry and undignified reply.

Of some of Mr. Elder's statements we refuse to take any notice whatever. When he has studied and understands fully the work we have done, he will be entitled to be heard with respect. At present, he has not mastered even the elementary part of our papers. To other of his remarks we are, unfortunately, obliged to reply, lest our silence should be misconstrued: but our remarks shall be short.

Mr. Elder's definition of, and his remarks concerning, the speed of plates, and the range of gradation necessary in negatives for artistic effects, are neither new nor correct, and anyone can easily convince himself from our papers that we have fully considered these several points. If Mr. Elder is unable to produce two exactly similar negatives on plates of widely different speeds, we shall be pleased to give him a demonstration in Widnes, as we did before an audience in Liverpool. It is not true that we ever asserted that the ratio of gradation of a technically perfect negative must be the same as in the object portrayed; nor did we ever assert that the print from such a negative was perfect. It is equally untrue that the finest negatives have their gradations in that part of the scale which we have termed the "period of under-exposure." We have measured many wet-plate negatives as well as dry, and we have invariably found that, in sparkling negatives, the opacities range from about 1¼ to 320. If Mr. Elder will produce a sparkling negative, the gradations of which lie between transparencies 9¼ per cent. and 16½ per cent., we shall be glad to have the opportunity of inspecting and measuring it. For the present, we say that neither he nor anyone else has ever seen a sparkling negative with such a range of gradation as he mentions.

That Captain Abney's method of speed determination gives numbers wholly at variance with the speeds found by our method was precisely the reason why we pointed out the weakness of a method depending upon a single density. We foresaw the fate which must, sooner or later, overtake Abney's method. Announced to the world in April, it is completely abandoned, even by its author, in November of the same year. We and our friends knew well that a method which depends upon the "period of under-exposure" must be liable to great variations and errors, the deciding densities being too small to permit of accurate measurement and reproduction, and that such a method must be utterly useless. The contradictions between the speed found by Abney's method and our own we ourselves laid bare before the Camera Club. It is, therefore, no surprise to us—and it cannot be to any of the public—to find our statements verified by Mr. Elder.

Had Mr. Elder taken the trouble to ascertain by means of the camera which speed is the more nearly correct, Captain Abney's or our own, such an experiment, carried out fairly and carefully, would have told a story which would have silenced the silly assertions dictated only by Mr. Elder's fertile imagination. For the present, we again affirm that the speed, as ascertained by our method, is a number to which the exposure in the camera must be proportional if a good negative be the desired result. We ourselves pointed out before the Camera Club that Abney's and our own methods could not possibly give the same or proportional speeds of a plate in absolute units, and we took the trouble to show the error Captain Abney had fallen into with his logarithms, which error led him to the conclusion that his method gave the same zero point—*i.e.*, the same speed—as ours. It appears to us that logarithms are also a source of trouble to Mr. Elder. He says that Abney's transparencies are proportional to the negative logarithm of the exposure. This is either not true, or, if it be, it is not in accordance with the "law of error" formula which Mr. Elder attempts to set on its legs again. Mr. Elder simply mistook the square of a logarithm for the logarithm of a square.

The question of Captain Abney's recent researches we intend to deal with separately before long.

There is only one other point to which we must allude. Mr. Elder wrongly accuses us of having unfairly criticised Captain Abney when we said that he attempted to prove that a parabola did not differ much from a straight line, and Mr. Elder endeavoured to show that the Captain did not fall into this error. Let the Captain's errors sleep in the annals of the Camera Club. Why drag them before the public, and compel us to again assert that he did commit this error, and that in the whole of the passage to which we refer (*Camera Club Journal*, vol. vii., page 129) the point of inflexion is not mentioned, and was not meant? Our criticism was not only just, but absolutely necessary.

To conclude, we adopt his own words when we say: "It would be too wearisome to hunt down the whole of the errors in Mr. Elder's criticisms to their bitter end." We have purposely steered clear of mathematics, as our object has simply been as shortly as possible to reassure our friends, and to show the general public that Mr. Elder's criticisms are unworthy of serious attention. While he "does not in the least seem to realise what is meant by the determination of speed," and does not offer one scrap of new experimental evidence, we have shown, and frequently demonstrated by experiments before the public, that a more than sufficiently accurate speed number can be assigned to any plate without reference to any other plate, and that this number is expressed in units as absolute as the gramme or centimetre, though not as easily reproduced. We have also repeatedly shown the practical applications of which our system is capable, and we can only say to Mr. Elder, unless he still wishes to regard our work with a "jaundiced eye," "Do as others have done, who, with open minds, have only desired to learn the truth. Come to Widnes, and see for yourself."

F. Hurter and V. C. Driffield.

LIVE AND LET LIVE.

BY F. G. SMITH.

I NOTICE that a good deal is being said in photographic journals lately about the much-abused photographer. They say the poor fellow receives only a "pittance" for the wonderful fruit of his genius. Now much as this state of things is to be deplored, there is certainly another side to hear from. Whose fault is it? And at whose door lies the blame? Does not the photographer in charging a certain price per dozen for pictures virtually say, That pays for my time, skill, material, &c.? Or is it only so much on account, with the customer indebted to him ever after? A "pittance" indeed! Why should he do it? Add another dollar or two, and keep on adding until you feel that your price is equivalent to all that you give. A man should obtain the highest possible price for his pictures. If he thinks his prices too low let him raise them. Then, if the public will not pay his prices, he can consider that he has reached his limit, and to figure out the worth of his "skill and effort" is an easy matter. It is just as much as it will bring in dollars and cents on the public market. It may be more in your personal imagination, but you are in business with the public; you derive your profit from that source, and what they will pay for your goods is what your "skill and effort" are worth. No more, no less.

Remember there are others in the same business who also possess skill who receive no more per dozen than you. They receive their "pittance," and, like you, must be content. There is also a class of workers in our line who possess abundant skill who might have a grievance also. Operators, retouchers, printers, receive little enough in return for their work, but evidently that is their market value. Grumbling makes it no better. The proprietor will tell you that he gives you all that you are worth to him. That the profession is poorly paid as a rule is too true. The difference between bad and really meritorious work with artistic posing and lighting is not apparent to most people. They will not pay your price when the man across the way asks only one-half as much.

Many photographers have much to say about the "mere copyist," meaning, I suppose, the artists who do portrait work.

Now what do these photographers do? Mrs. A. gives an order for a life-size portrait in oil or crayon. Straightway the photographer hies himself to the "mere copyist," orders him to produce the portrait at so much, which I happen to know *is* a "pittance" in comparison to what he gets in return from Mrs. A. On the other hand, if Mrs. A. is a woman of keen observation, and also prudent, she goes personally to the "mere copyist," and gives her order. Then the photographer inclines to say wicked things against the "copyist." Why? Because he had no slice of the profits on that portrait.

The fact is, some photographers want both "kernel and shell"; they think the "mere copyist" can live on a "pittance." But they—well, that's another story. Probably none of us make so much money as of yore; but why seek to drive a fellow-man to the wall? We should not attempt to down him by any mean, but by fair competition. You cannot monopolise the business in your town. If your work merits it you will win. The "survival of the fittest."—*Wilson's Photographic Magazine.*

PROCEEDINGS OF SOCIETIES.

London and Provincial Photographic Association.

December 21st.—Mr. W. E. Debenham in the Chair.

Mr. Le Blanc showed cartridges of material for fixing, toning and fixing, and for developing, as manufactured by Dr. Andresen, and demonstrated their use. One cartridge, dissolved in eight ounces of water, made an acid fixing and clearing bath, and, for plates to be fixed in it, it was not necessary to wash the plate after development. The toning and fixing cartridge was also dissolved, and gelatine prints toned with it to a warm brown. If kept in for twenty minutes, black tones were stated to result. Albumen prints might be toned in the solution, but with these the action would be slow and not even; but for the ordinary chloride papers it was strongly recommended. A metol developing cartridge was also used, and produced a satisfactory negative of a black colour. With metol, bromide might be added to secure clearness, without having a retarding effect. If it was desired to use a retarder, acid was employed.

Mr. R. Child Bayley asked whether any special advantage was claimed for metol as a developer.

Mr. Le Blanc replied that metol was more energetic than pyro, and that density could more easily be obtained with it.

Mr. Bayley enquired whether metol was cleaner than pyro if with the latter as much sulphite was used as was employed with metol.

Mr. Le Blanc answered: Certainly.

Mr. J. S. Teape had noticed one quality with metol. If a very old plate were developed, such as with pyro would give a stain all round the margin, with metol there would be no stain.

Mr. Le Blanc said that the same property was possessed by glycin in an even higher degree.

Mr. Hodd said that he had obtained much better detail with metol and ammonia than with metol and carbonate.

Mr. A. Haddon asked whether the toning and fixing solution could, after use, be fortified with more gold, so as to make it serve again.

Mr. Le Blanc said that it could.

Mr. Chas. L. Burdick, of Chicago, then showed and demonstrated the use of a new form of air-brush. The implement to be held in the hand was only of about the size and weight of a pencil, so it was held in the same way that an artist was used to hold his drawing material. The supply of liquid black or colour need only be a drop, so that it could be used for various colours in the same way as an ordinary brush. With the finger, the atomiser could be regulated so as to permit of a very small stream of colour, or of a free supply, being used. Specimens of work done, both in black and colours, were shown, and a life-size head with some shading was rapidly sketched. To show that it could also be used for small work, an eye was drawn of about the same size that it would come in an ordinary cabinet vignette. For colouring photographs, the transparent style of the work was a great advantage, as the drawing was not hidden. The instrument might also be used to some extent for retouching negatives. Sharp lines could not be taken out with it, but for large spaces that were too transparent it was very useful. Standard water colours were used for painting with the air-brush. Oil colour could be used, but the effect was that of the water colour. Some practice in the use of the instrument was, of course, necessary.

Mr. Cooke asked if it was possible to remove colour laid on by the air-brush.

Mr. Burdick replied that that was done with ink-eraser.

South London Photographic Society.

Ordinary Meeting, December 18th, at Hanover Hall, Peckham.—The President, F. W. Edwards, Esq., in the Chair.

A demonstration was given, by Mr. S. H. Fry, of making lantern slides on gelatine plates. One good rule, he said, in making slides, was to make the exposure suit the developer, and not to alter the developer to meet the exposure. Hydroquinone he recommended as a developer, but if it was decided to use one of the newer developers metol was the best for the purpose. The use of an acid-fixing bath assisted very materially in the production of clear slides. A series of slides made from one negative on Paget slow plates were projected on the screen, to show the variety of colour obtained by exposure, and use of varying quantities of carbonate of ammonia in the developer. A number of slides exposed, developed, and fixed during the meeting, were shown in the lantern.

The new lantern, secured by the Society in competition at the Stanley Show, was on view. Attendance, 48.

The Photographers' Benevolent Association.

At a meeting of the Committee, December 20th, 1893, at the Rooms of the Photographic Society of Great Britain, Mr. Mackie in the chair, several cases were considered and relieved.

This was a special meeting called at the request of the Treasurer and President to consider the state of the funds and the possibility of increasing the income which this year has been considerably below the amount granted.

Donations were acknowledged from—L. C. Brookes, £1 1s.; Birmingham Photographic Society, £1 1s.; R. S. P., 10s.; Hazell, Watson, & Viney, £1 1s.; *Photography* Prize Competition, 4s.; An Amateur, 2s.; Anonymous, 1s.; Chas. Job, 10s.; C. E. Abbott, 1s.; Ernest Spencer, 7s. The following were accepted as subscribers :—F. M. Thompson, 2s. 6d. ; and the Albion Albumenizing Co.. £1 1s.

Mr. **John Spiller**, the Honorary Treasurer, said that the state of the funds was so different from what it had been in any former year that he felt the present year ought not to expire without some special effort to retrieve the position of the Association. Although the income this year had been slightly larger than the regular income, the demand upon the funds had been enormously increased, and the result was that up to the present almost twice as much had been granted as received, and the experience was that after Christmas the income generally dropped to almost nothing, while for some months the demands were likely to remain steady. He read a letter from the President deprecating large grants, and strongly advising that the Committee should endeavour to decrease the outgo. The subject was discussed at some length, and the members seemed generally of opinion that so long as thoroughly rigid inquiries were made in each case, they could not refuse relief until the Association was absolutely without money.

It was decided that the members, both individually and collectively, should make all possible efforts to increase the income, but that to refuse assistance until the surplus which had accumulated during many years was entirely exhausted would be against the wishes of those who subscribed to help the needy.

HACKNEY PHOTOGRAPHIC SOCIETY.

Tuesday, December 19th, 1893.—Mr. E. **Puttock** in the Chair.

An entertainment was given to a large gathering, entitled "Chicago Exhibition," by the Society's honorary lanternist, Mr. Albert Rose. A number of slides of excellent quality was shown, and proved very interesting, as they gave the audience a good idea of the size of this gigantic exhibition. Members were particularly requested to attend on January 2nd, when Mr. **Burdick**, of Chicago, will give a demonstration upon the "Air Brush" ; also a demonstration by Mr. **Howson**, on "Matt Surface Paper."

WOODFORD PHOTOGRAPHIC SOCIETY.

Informal Meeting, December 21st.—Mr. H. **Wilmer** (President) in the Chair.

A discussion on "Toning Gelatino-Chloride Prints" was opened by Mr. E. **Blaird**, who preferred the combined toning and fixing bath recommended by the Eastman Company. He showed prints toned by this bath to a rich, warm brown and a purple. He said that keeping the paper perfectly dry was absolutely necessary in order to obtain uniform results.

The **Secretary** (Mr. Henry W. Bennett) showed several prints on the new Ilford Matt P.O.P., expressing the opinion that the new paper was a most valuable advance in photographic printing, combining the advantages of gelatino-chloride with a drawing-paper surface. He advocated the use of a borax toning bath in preference to the sulphocyanide usually recommended, purer red and brown tones being obtainable, with an entire absence of blue half-tones that sulphocyanide frequently gives. He said that pure sepia tones could not be obtained by gold toning at all, a red-brown or a purple-brown being the nearest approach to it. He showed a print toned with platinum to a colour closely resembling sepia platinotype, the toning bath being :

Potassium chloro-platinite	1 grain
Hydrochloric acid	4 minims
Water	4 ounces

For this bath prints must be very deeply printed, and toned until almost black, as they lose both colour and depth in the fixing bath.

Mr. H. T. **Malby** had always used a sulphocyanide bath, but preferred separate toning and fixing. In regard to the combined toning and fixing bath, he said that he had specially prepared some prints in order to test their permanency. They were all toned in the combined bath to the same colour, some being afterwards refixed in a plain hypo bath for about ten minutes. All the prints, after washing and drying, were put loosely away for two years where the air had free access to them. Those that had been refixed were as fresh and bright as when first made ; the others badly spotted all over.

Next meeting January 4th.—Members' lantern night.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, December 19th.—Mr. J. T. **Mousley** in the Chair.—About twenty-two members present.

The series of one-man exhibitions was continued by Mr Underwood, who had a splendid number of prints on view. They comprised all kinds of subjects, while the interiors, perhaps, showed especial skill ; the detail being so clearly defined, and no hardness in the shadows. Mr. Underwood, who works with gelatino-chloride paper, showed a great variety of good tones, and the exhibition was alike profitable as regards instruction in composition and technique.

LEEDS PHOTOGRAPHIC SOCIETY.

A meeting of the newly-elected committee for the ensuing year was held in the Society's Rooms at the Mechanics' Institute, on Monday, the 18th inst., for the purpose of electing the officers and settling the syllabus for the year. The officers elected were as follows : President, Mr. J. H. Walker ; vice-presidents, Mr. S. A. Warburton and Mr. Godfrey Bingley ; treasurer, Mr. Herbert Denison : librarian, Mr. T. Butterworth ; lanternist, Mr. H. P. Atkinson ; and secretaries, Mr. Herbert Denison and Mr H. L. P. London. These gentlemen, together with Mr. B. A. Burrell, F.I.C., Mr. R. Steele, and Dr. E. H. Jacob, M.A., M.D., form the committee. The Society's annual lantern exhibition, which has hitherto been held in November, has been omitted for the present year, but will be held on the 18th January next in the Albert Hall, when a novelty will be introduced in the use of the electric light in the lantern. The syllabus for the coming year comprises many interesting papers and demonstrations on subjects connected with photography.

GLASGOW AND WEST OF SCOTLAND AMATEUR PHOTOGRAPHIC ASSOCIATION.

Ordinary Meeting, December 18th, in the Rooms of the Association.—Fourteen new members were elected.

Mr. J. C. **Oliver** gave a demonstration of negative retouching, using an enlarged paper negative on which he pointed out the modifications required, and showed how they might be effected. Negatives in various stages of retouching were handed round, and transparencies from retouched and untouched negatives were shown by means of the lantern.

A large number of slides by members were shown on the screen.

An exhibition of members' work was opened on the 25th instant, and will be open to the public for a fortnight.

Central Photographic Club.

On the 29th December, Mr. **Lamont Howie**, of Eccles, will deliver his lecture, accompanied by slides, on "The Passion Play at Oberammergau"; and on the following Friday Mr. **Burdick**, of Chicago, will give a demonstration of the use of the air brush.

APPARATUS.

Messrs. R. & J. Beck, of Cornhill, have now placed upon the market their "No. 2 Frena" camera, a form of instrument which presents several improvements on the original model. The size is quarter-plate, and the film-changing mechanism has been simplified, and therefore much improved. It is in contemplation to do away entirely with the interleaving cards between the films, but this is an improvement which awaits the results of certain experiments which are in progress. Although the camera now takes a larger-sized picture, its actual bulk is reduced by a modification which deposits the exposed films at the back of the camera instead of in a well at the bottom.

The focussing is accomplished by a new system. Four supplementary lenses are enclosed in a neat case, under the name of "Frena Magnifiers." One of these is fastened as required in front of the ordinary lens, and by this means all objects to within a distance of three feet can be brought into sharp focus.

Among the small things recently introduced by Messrs. Beck should be noticed a neat clip for holding the "Frena" or any other film in the developing or fixing dish, without bringing it into contact with the fingers. By this ingenious appliance the film is firmly gripped, and released when required. Another help to workers is seen in a neat little album with folded leaves, between which a hundred film negatives can be stored and numbered for ready reference.

* * *

A sitter's vanity often peeps out in a photographic studio. One wonders what was the experience of the photographer who took the portrait of Vaillant, the latest exponent of the dynamite theory of revolution. It seems that a few days before the outrage at the Chamber of Deputies he spent eight francs in having his photograph taken, although he was very short of money. He called for a dozen copies only three hours and a half before throwing the bomb, and posted them to various people. A man so anxious for notoriety must have shown his weakness while sitting for his portrait. In America that photographer would have been interviewed long since, and the world enlightened as to what Vaillant said and did in the studio, whether he had a favourite side of the head, if he preferred looking up or down, and whether the photographer asked him to look pleasant previous to the exposure.

ANSWERS TO CORRESPONDENTS.

⁂ *Letters requiring an answer in this column should reach our office not later than Wednesday morning.*

I. C. (Barnton).—We will do our best to answer your long array of questions, but you would have made the matter easier for us if you had numbered them. It is outside our province to say how many books different men have written, and you can obtain the information at any good bookseller's. Steatite, aluminium, selenium, and mica you can obtain from Hopkins & Williams, Cross Street, Hatton Garden, London. A half-plate portrait lens is serviceable for lantern work. Pringle's book on Photomicography is one of the best and most recent. Read Traill Taylor's book on Photographic Optics. A number of articles on lens grinding have recently appeared in the *English Mechanic*. You should send for the catalogue of Zeiss, Jena, where you would find particulars of the various kinds of glass made and the prices. We are sorry that we are obliged to be brief.

M. N.—A great many devices have been employed for obtaining views from captive balloons (see paper lately read before the P.S.G.B. by Captain Mantell). A small balloon to carry an automatic camera would not cost much, and we should advise you to apply to Messrs. Brock, the pyrotechnists, for information on the point, for the balloons which they employ would be sufficiently large to carry a camera. An instrument was devised years ago by the late Mr. Woodbury which could be worked electrically from *terra firma*. You will find a picture of it in one of the back numbers of the *Graphic*.

F. R. H. N. (Breconshire).—You can easily make an enlarging apparatus for yourself. For quarter-plate negatives you will want a 6-inch condenser, and the lens which you have will do for the objective. A paraffin lamp with a round wick will answer for the luminant, but limelight is better. Ascertain by experiment the correct distances of light and lenses, and then make a containing box to hold lamp and condenser. If you use daylight you can dispense with the condensing lens. You cannot use such an arrangement for exhibition work, for a large condenser means loss of light.

Stickphast.—One of the best preservatives for a solution of gum arabic is salicylic acid. Gum Senegal is a synonym, but designates a good quality.

J. L.—Commercial oxygen varies in quality. The best is about 96 deg. pure oxygen, the remaining 4 per cent. being nitrogen. You would possibly get a higher percentage by the employment of potassium chlorate, but it would give you an increase of light which would be quite imperceptible and necessitate much trouble and risk of danger.

Fides.—Colours prepared for the purpose are sold by Newman & Co., Soho Square, London.

Bromide.—The enlargements will not require such a protracted washing if you adopt the precaution, when they first leave the hypo bath, of squeegeeing the superfluous liquid from them as they lie face downwards on a sheet of glass.

J. (Birkenhead).—If you will write to our publishers, stating the numbers which you require, they will tell you whether they are in print or not.

O. O. B.—We should not advise you to take up the work of photographing on wood blocks unless you have distinct promise of employment. There was plenty of demand for such work ten years ago; but now process blocks have become so general that it has been supplanted.

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